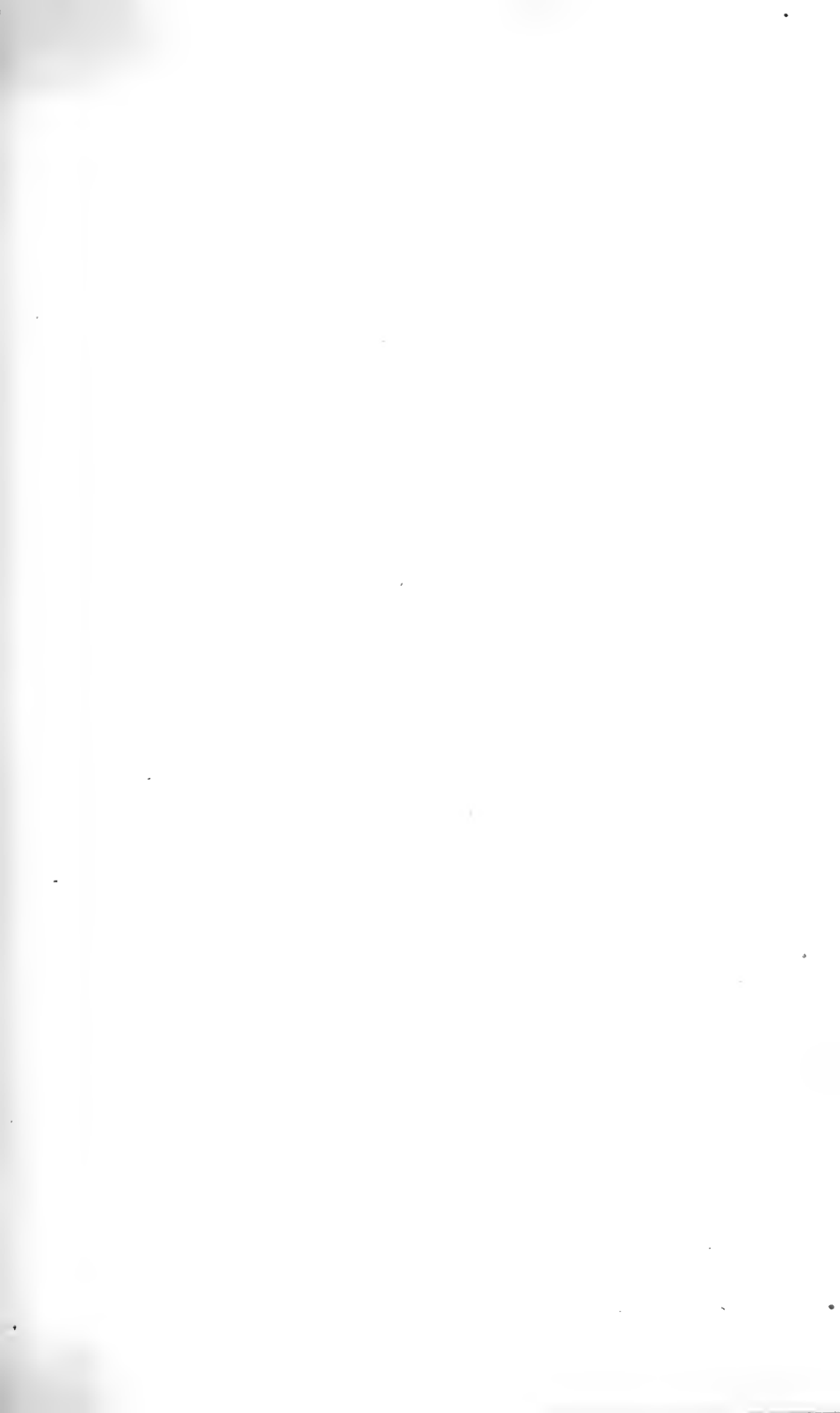


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THE MARYLAND SCHOOL JOURNAL.

M. A. NEWELL, EDITOR.

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THE
MARYLAND SCHOOL JOURNAL.
DEVOTED TO THE CAUSE OF EDUCATION.

Vol. VI. SEPTEMBER, 1879. No. 1.

THE BEGINNING OF INDUSTRIAL EDUCATION.

Read before the Industrial Department of the National Educational Association at the meeting in Philadelphia, August 29th, 1879, by
M. A. NEWELL.

Not much more than fifty years ago in one of the leading cities of the United States, a teacher about this time of the year, and about this hour of the day, might be heard calling at the top of his voice, "Sand class, come up." The story was told me by a member of the class. His father was the teacher. It was in a long, low, dimly-lighted room; there were some two or three hundred pupils; a few rickety slate-desks and a large number of backless benches completed the equipment as regards furniture; no maps, no blackboard, no sufficient supply even of writing materials; one teacher, with the help of a hickory sceptre almost as long as himself, reigned supreme, and took care that order reigned in Warsaw, while a dozen of lads somewhat older than the average of the school, under the name of monitors, distributed formal instruction, open rebukes and secret cuffs to the squads placed under their charge by the General-in-chief. And what was the sand-class? Why, slates being rare and costly, and blackboards not having been discovered, a shallow trough some five feet square,

filled with sand slightly moistened, afforded a surface whereon the young pioneers of learning might inscribe their daily tasks in A, B, C's, pot-hooks and hangers, and even Arabic numerals. This was the only free school in the city, and I am not quite sure that the pupils did not pay a penny a week for admission, as was the custom of most of the Lancasterian schools of that day. And this was the beginning of a great public school system, which to-day in the same city, embraces every grade of instruction and every variety of subject-matter, from the primary school to the university, from the English alphabet to the literature of Greece and Rome, as well as France and Germany.

Why do I recall these things? Not simply to remind you that our public school system, as it exists in cities and other centres of dense population, had its root in the old and now almost-forgotten Lancasterian school; but rather that by reviewing the history of common school education from its birth to its present development, we may be able to derive help and encouragement in our plans for industrial education, and possibly even to forecast its future progress. We need to be reminded that this magnificent system of intellectual instruction, of which we are so justly proud, had within the memory of men now living an origin as obscure, a beginning as insignificant, a future as uncertain, a prospect as discouraging as the projected system of industrial education now has even in the eyes of its advocates.

Our common school system—and I have in my mind the complicated structure of a city school system—was not built up after a preconceived plan. It grew under the hands of its founders, under the pressure of necessity, under the stimulus of encouragement, from a mere root in a dry ground into a beautiful and symmetrical tree. Men knew not what they were about to do; and were hardly able to recognize their work after it was finished. To be candid, I must say that had men known beforehand the gigantic proportions to which the Lancasterian infant would grow under their nursing, they would

have been tempted to strangle the babe in its cradle. Had there been a prophet to warn them that the three R's would blossom into a perfect encyclopedia of science and literature, that the one desolate room would expand into scores of palace-like structures, that the unplanned slab-seats would burgeon into luxuries in ash and walnut fashioned by the deftest of cabinet-makers after artistic designs, and meeting every requirement of health and comfort as well as taste; that the sand trough, as though rubbed by Aladdin's lamp, should swell into blackboards and brighten into maps; and, more wonderful still, that the hickory instrument itself should bud like Aaron's rod and bring forth fruit, globes and telescopes and microscopes, and all the paraphernalia of the physicist and the chemist; and, most wonderful, of all that the penny-a-week should be so compounded as to yield millions of dollars a year, the mere announcement of the prophecy would have ensured its non-fulfillment. So when we are asked to draw the working plans of a great system of manual education, to show upon paper its length and breadth, and height and depth, to calculate its cost and to devise the means by which it can be built according to the designs of the architect, we reply we cannot if we would and we would not if we could. It is not a question of building according to pattern; it is an entirely different kind of product for which we are laboring. We prepare the ground, we sow the seed; we trust to Providence for the sunshine, the rain, and the storms which shall determine the growth, the size and the fashion of the tree.

What, then, devolves upon us, that we may make a beginning of industrial education possible? We must prepare the soil and we must sow the seed. The soil is public sentiment. It is part of the price we pay for liberty that nothing can grow among us unless it is supported by the life-giving and life-sustaining power of public opinion. Looking to the history of common school education we can recognize three distinct steps in the march of public opinion, and we may expect to make the very same steps on our way to a universal system of manual education.

1. The recognition of the necessity of universal elementary education. Not the utility merely, nor the advantage, nor the propriety, but the absolute necessity of educating the intellect of those who are to be the rulers of the Republic.

2. The conviction that private and individual efforts are totally inadequate to the work of universal education.

3. The acknowledgment that the public money may rightfully be used for this purpose, and that under certain circumstances it becomes a duty so to use it.

Industrial education cannot have a beginning until the same propositions are admitted with reference to it. The education of the hand must be recognized to be just as necessary as the education of the head. When this is once accepted the other propositions—the inadequacy of individual efforts and the right and duty of the people in their collective capacity to do what the individual has failed to do—will soon become apparent.

It does not come within the scope of this paper to argue any of these points in detail. My purpose is principally to indicate the parallelism that may be traced between intellectual education, as it began to exist for the masses half a century ago, and manual education which, except in the minds of a few thinking men, can hardly be said to have as yet had a beginning, and from this analogy to derive instruction and encouragement.

The urgent necessity of manual education has not yet been fully admitted; and yet every valid argument in favor of educating the head, at the public expense, may be urged with equal force in behalf of the education of the hand. Is it necessary for every free citizen to know how to vote? It is equally necessary for him to know how to earn his living. Is ignorance dangerous to the Commonwealth? Equally dangerous is idleness. Does the education of the head prepare a man for the better discharge of his social duties? So does the education of the hand. Is learning the ally of morality and virtue? So is manual labor. Does learning give a man a feeling of independence and self-respect? So does industry. Does learning

tend to keep a youth from low company and bad habits? So does industry. Is intellectual training necessary for the full development of personal character? So is physical training. Must our reason be cultivated because it is one of God's best gifts to man, bestowed on us for this very purpose? The argument applies equally to our bodily powers. Is the *mens sana* a worthy object of the philosopher? It is useless unless placed in *corpore sano*. Are individual efforts inadequate to the support of universal intellectual education? They are equally inadequate to the support of universal industrial education.

In like manner every objection which has been made against manual education has already been urged against intellectual education, and has been weighed in the balances and found wanting.

"It is not the duty of the State; it is the prerogative of the parent; it is impracticable; it is too expensive; it is wrong to take one man's money to educate another man's child; it is communistic in theory; it will lead to other and more objectionable communistic doctrines and practices." All this has been said of intellectual education and has been disproved by the logic of events. The same has been said or may be said in opposition to manual education and can only be effectually disproved by the same logic.

Arguments are worthless when they are opposed by facts. The logic of Herbert Spencer is shivered like a broken lance against the facts of Philbrick and Harris. In spite of every reason why there cannot be and should not be an effective and universal public school system, such systems exist. It will be the same with this new enterprise of industrial education. Only give it a beginning. Let it once begin to exist, even on the smallest scale, as an established fact, and all objections will be swept away by the resistless current of events. It is hard to say when any living thing begins to be. If it is alive it has always been, in a certain sense. I have chosen to represent the Lancasterian school as the beginning of our present city

school systems. Some will prefer to go further back, just as they might trace the idea of the steam engine beyond Fulton and Watt and the Marquis of Worcester back to the dim records of scientific antiquity. But the real birthday of the steam engine was the day when it became known that steam power could be produced with economy, applied at discretion and controlled with safety. We need not go back to Solomon and Moses for the idea of our public school. It began to live just when it was shown practically that children could be cheaply and effectively taught in organized masses. So manual education will then only begin to live when some Bell or Lancaster or Robert Raikes shall show us, not on paper, but in a working model, how manual education can be given cheaply and efficiently to masses of young people such as now attend our public schools. I do not wish to underestimate the difficulty of the undertaking, and I, therefore, state the problem in its most general form. What is required is a system of manual training which shall be at once cheap, efficient, and applicable on a large scale. Such a scheme cannot be evolved from one's inner consciousness. It cannot be reasoned out from first principles. But if it cannot be *thought* out, it may be *worked* out by the old-fashioned rule, known in obsolete arithmetics as "Trial and Error." It is said that Russia has already solved the problem. As regards efficiency, it may be granted; as regards cheapness and adaptation to large numbers, I am doubtful. But if it has been done, let us have a working model in each of our ten largest cities; not as a perfect pattern, but a pattern to be perfected—an experimental model, to be enlarged, altered, improved, reformed, as experience shall suggest.

By whom should this model be set up and set-agoing? The natural answer would be, by the public school authorities. We should certainly strive to obtain their co-operation, but it would be long waiting for them to make the beginning. Their hands are full; they have little time and no money, even if they had the inclination to make experiments. Beside, they

were elected or appointed to a different duty, and the impulse must come from the people to their officers, not from the officers to the people. When the official canvas is swelled by the breeze of popular opinion, the ship will move steadily and rapidly enough through the waters ; but we must not depend on official breath for wind. A beginning must be made ; and if we cannot expect it to be made by the public, our dependence must be on private enterprise and the philanthropy of associated individuals.

When private benevolence shall have shown that the scheme is practicable, and the public conscience shall have been quickened to a sense of its necessity, the authorities will not long hesitate about adopting it officially. Can money be obtained for such a purpose ? Look at the thousand channels through which the healing waters of organized charity are now flowing, and doubt, if you can, the capacity of the reservoir to supply one streamlet more. The benevolence of the American people is practically inexhaustible. Were there no further demands upon it at home, the waste-gates would have to be opened that the surplus might escape to the shores of Africa or to the islands of the sea. What is wanting is not means, but faith ; faith founded on knowledge ; not knowledge of an abstract or general character, but a burning conviction that will bring forth the proper fruits of knowledge.

Men must be made to know and feel that we have now arrived at a crisis in our social condition ; that as man cannot live by bread alone, so neither can he live by the learning of the schools alone ; that the possession of a good common school education, which was once so rare as to be a mark of distinction, is now so common as to be noticed only when it is wanting ; that a college diploma is no longer a recommendation (but sometimes a disqualification) for a position requiring the exercise of high manly faculty ; that the abuse of our wonderful facilities for elementary and secondary education has flooded the country with teachers, lawyers, doctors, clerks, salesmen, runners and petty traders ; that a false social sentiment has increased the

evil by perversely making a discrimination in favor of the man that lives by his wits and against the man that lives literally by the sweat of his face, so that if our manufacturing establishments and other great industrial works were obliged to depend exclusively on native American labor one-half of them would have to close their doors; that in the train of our immense army of *bona fide* producers and distributors there is following another army of hungry camp-followers without either the hands to produce or the head to distribute, but with stomachs that must be filled at the expense of honest producers and distributors; that this army is daily increasing in numbers and acquiring strength by organization, so that while now we have companies, we shall ere long have regiments of tramps, bummers, loafers, roughs, gamblers and professional ward politicians.

The people must be made to feel and know that against organized idleness and vice there is but one sure protection—the organization of skilled and honorable labor. The common school can no longer save us unless it is supplemented by the common workshop. The rewards which at the beginning of the century were promised to good scholarship must now be paid to good workmanship, founded upon sufficient scholarship. The battle of the schools must be fought once more, but this time for the training of the hand in addition to the cultivation of the intellect. Of old it was claimed that parents had a right to bring up their children in ignorance if they chose; but public opinion said no, for ignorance in the masses means death to the Commonwealth. To-day you will be told that parents have a right to bring up their children in idleness if they choose. But the *vox populi* will again be heard to thunder, No! for the idleness of the masses would be fatal to the Republic. It was said of old, in relation to elementary education: "Let it alone; it will regulate itself; men are moved by self-interest, and it is the interest of parents to educate their children; the parental relation must not be assumed, parental functions must not be discharged by the State; if the State should teach children to read, it would be

equally bound to supply them with literature on which to exercise their faculty after they have learned to read, which would be agrarianism, communism, Fourierism, or some worse *ism*." But all this special pleading was answered by a simple statement of fact. The parents did not educate their children. According to all the rules of the political and social economists they ought to have done so, but in fact they did not. The State, then, was obliged to step in and perform the duties which the parents had neglected. Call that communism if you please! In like manner, though interest and duty and parental affection all combine to enforce on parents the duty of bringing up their children to some form of productive labor, yet the obligation is largely disregarded; and the neglect is greatest just where it can be most hurtful—in our large cities. But the safety of the country demands the suppression of idleness and the encouragement of industry by elevating manual labor to its proper rank among human employments, and the State must, for her own protection, assume the responsibilities which the parent has disregarded.

We are not to be frightened by the cry of communism; by the warning, which is intended as a threat, that if the State teaches young men to work the State must also furnish work and pay wages to the graduates of its own creation. It can hardly be doubted that the supply of skilled workers will, in the long run, create a demand for skilled labor. But should it be otherwise, should the warning prove to be a prophecy, it should not drive us from our position.

Better far the cry for honest labor and its wages in lawful money than that other and more fearful cry which so often rang through the streets before the downfall of Rome—" *Panem et Circenses*."

In conclusion, what is the duty of the hour? What can practical teachers and directors of educational affairs do to aid in this beginning of industrial education?

1. We can aid in the dissemination of sound theoretical

views on this subject, using the newspaper and the periodical press as our instruments.

2. We can insist that drawing (which holds the same place in industrial as reading does in intellectual education) shall be efficiently taught in every school and in every grade.

3. Those forms of practical work which can be introduced into our present schools without causing confusion should be encouraged. It is hard to find work of this kind for boys. Probably some kind of wood-work,—cutting, fitting, carving—might be done as a home exercise, instead of the burdensome and useless memory tasks. But girls can be taught lessons as closely patch, cut and fit, in a series of practical to sew, darn, knit, graded as the lessons in a series of reading-books.

Lastly, we may be able to aid in establishing, in one or more cities where the means can be procured by private subscription, a workshop after the Russian model, which, for industrial training, shall be to the graduate of the elementary school what the high school or college now is for intellectual training.

All this being accomplished, we may not even have made a real beginning of manual education, for that cannot be achieved without a long and hard-fought battle; but we shall have made a reconnoissance in force, which will reveal the strength of the enemy's position and show us where to plant our guns and how to marshal our forces.

Say well is good, but do well is better,
Do well seems the spirit, say well is the letter;
Say well is goodly, and helps to please;
But do well is Godly, and gives the world ease;
Say well to silence sometimes is bound,
But do well is free on every ground.
Say well has friends—some here, some there,
But do well is welcome everywhere.
By say well many to God's word cleave,
But for lack of do well it often leave.
If say well and do well were bound in one frame,
Then all were done, all were one, and gotten were gain.

RE-ADJUSTMENT OF STUDIES.

Synopsis of a paper read by A. J. RICKOFF, A. M., Superintendent of Public Instruction, Cleveland, O., before the National Association at Philadelphia.

As a consequence of the war, the value of education was greatly and justly enhanced in public esteem. Never had a great truth been more deeply impressed upon a people than that the common school is the only safeguard of liberty and good government. It is difficult to enumerate all the counts in the indictment against the schools of to-day. Many have joined in one charge or another; but there seems to be no general agreement upon any particular one, except, perhaps, the overcrowded programmes of study, and the neglect of the more important branches of a good American education.

The programmes of our schools are overcrowded. The best conditions of mental, moral, and physical development are not afforded even in our best schools; the fundamental branches of a good English education are neglected. Thoughtful educators have felt the truth of this more than their critics; but they differ from them as to what the fundamental branches of a good English education are, and hence they differ from them as to the remedies which are to be applied. It is not the addition of the new branches, but the growth of the old, which have caused the chief difficulty. The work required in the study of reading, arithmetic, grammar, and geography, in our best schools of to-day, is from five to ten times greater than it was in the same studies and in the best schools in the first part of this century.

A comparison between the amount of work required in the old school and in the new may be had by reference to the textbooks used then and now. In arithmetic, what was formerly only a series of "sums," to be performed under precise direction of rules, each aided by at least one model example, has grown to be a science, every rule of which is fully developed, and every principle demonstrated. The problems have grown

more intricate, and new subjects have been introduced to meet the demands of the more complicated business transactions of the day. The old books are their own witnesses to the fact that they gave no explanations, and as we are told by Salem Town, Lyman Beecher, Warren Burton, Wm. B. Fowle,—all indeed who have given us any information on the subject, the teachers never explained anything; the pupils, in fact, were not expected to understand anything; all they were required to know was how to do the sums. In grammar, instead of the simple catechism to be found in *Dillworth's Spelling-book*, we have multiplied definitions; logical analyses and subtle distinctions are not unfrequently attempted which would put to his mettle even a first-class metaphysician.

He contended that the fundamental branches of a good English education in our schools were neglected, and the principal objection against the common school system of the day was, that too little regard was paid to practical, and too much to the ornamental branches of education. The curriculum of the schools needed reforming; some studies were neglected, and others were taught to excess. Grammar was a subject that was being made a principal study, while geography was conspicuously neglected. There appeared to be no system in the curriculum of many of the school systems of this country. The subject of reading was a neglected one. As it is now taught, it is the reading of words, not thoughts. The pupil was not taught to commence with the author, but to skip over the words in an artistic manner. What was wanted was to bring the student in close intercourse with the author. It is that which gives men an insight into books, and gives them a power over other men. He thought that more attention should be given to subjects outside the old studies. The student should be brought into close intercourse with the author, that he might obtain an insight into books and a power over others. The essay advocated studies in natural science, meteorology and electricity, they being quite as useful as geography and mathematics.

It was just as well for a pupil to know why a barometer indicated the coming of a storm, as it was to know the course of a river in Africa; and it is as important to study the mysterious power by which the earth could be girdled a dozen times while in revolution once, as it is to know how to work out a problem in square-root. He asked whether there is any subject which might more profitably engage the attention of this Association than the proper re-adjustment of studies, with the material which has accumulated for years all before us, in the light of experience and with the aid of a science of education, which has received much attention of late? May we not be able to build a fairer structure than that which now cumpers the ground?—*New England Journal of Education*.

ART OF SECURING ATTENTION.

ATTENTION is the power of the mind to direct its own activities. It is the concentration of the mental energies upon one thing at a time. The art of teaching is based on the art of securing and holding the attention of the learner.

I. EDUCATIONAL IMPORTANCE OF ATTENTION.

1. *Attention is the Condition of Knowledge.* Without some degree of attention nothing can be learned. The accumulated power of attention renders acquisition possible.

2. *Mental Growth Depends upon Attention.* Mental power increases in the proportion that the pupil acquires the power of exact, rapid, penetrating and prolonged attention. Imbeciles lack this power.

3. *Memory and Perception Depend upon Attention.* When there is no attention we are unconscious of mental action and there is no recollection. The closer the attention, the clearer are our perceptions, and the more tenacious our memories. Indistinct perception and poor memory are largely the results of the habit of inattention.

4. *Teaching Power is Determined by the power to Secure and Hold the Attention of Pupils.* Without this power, neither ability nor scholarship will avail. It is clear that the art of securing attention is a fundamental qualification of the teacher. Education is a failure, unless it develops in the pupil the power of penetrating and prolonged attention.

II. UNFAVORABLE CONDITIONS.

As far as possible, whatever distracts attention should be avoided. Children need every favoring influence in their weak efforts to give attention.

1. *Boisterous teaching* distracts the attention of those studying. Teachers and pupils should speak in low or medium tones. We want energy but not noise ; study to be quiet, as well as earnest.

2. *Punishing pupils* during school hours seriously interferes with attention. Only the most unskillful teachers distract the attention of the school by reproof or scolding or other punishments. "A time for everything."

3. *Speaking to the Teacher Diverts Attention.* "May I speak?" "May I get a drink?" "May I leave my seat?" No such questions should be permitted. All necessary communications should be made by silent signals. For the first question, the hand is raised with the first finger extended ; for the second, with the first and second fingers extended, etc. The teacher responds by an appropriate movement of the head. Better let all such things be attended to during the recesses.

4. *Watching Disorderly Pupils is Most Damaging.* The entire attention of the teacher is due to the class reciting. Only thus can he hold the attention of the pupils. Here is a serious difficulty. There is no remedy but in training the pupils to the habit of self-government.

III. HOW NOT TO SECURE ATTENTION.

Attention is not secured by claiming it ; not by entreating it ; not by urging its importance ; not by force ; not by threats ; not by promises ; not by bribes. All such efforts are

the subterfuges of the weak and the unskillful ; but they fail to long hold attention, and utterly fail to develop a habit of attention. The art of securing attention is positive, not negative, and may be indicated by the following simple rules :

IV. RULE 1. INTEREST THE PUPIL.

This is the fundamental means of securing, as well as of cultivating the power of attention. The teacher must have something good to present, and must present it in a suitable manner. Study the secret springs of interest. Keep curiosity and the thirst for knowledge always active.

1. *Novel Objects.* The child is all attention to novel objects. As primary teaching is necessarily objective, means of interesting pupils are readily commanded. Infinitely silly must be the teacher who does not use objects as the means of securing and cultivating attention.

2. *Stories.* Children are wonderfully attentive to stories, anecdotes, incidents and lively descriptions. Each recitation may be made more attractive and more valuable by incidents, anecdotes, or something else in this line.

3. *Adaptation.* All knowledge, if timely and adapted to the capacity of pupils, may be made as interesting as objects and stories.

4. *Mistakes.* Tasks, repulsive lessons and forced work, are educational mistakes. They repel and repress rather than develop the power of attention. It is glad activity that gives culture. When study is made more interesting than play, pupils, unasked, give the utmost attention. By interest and management, not by force, the soul is reached.

V. RULE 2. WIN ATTENTION BY ENDLESS VARIETY.

Avoid all routine, all monotony, all prosy explanations. Make everything *real*. Flash upon the class your information and your explanations. Inspire the class with the new and the fresh. Never repeat yourself. Create activity and gain attention by constant surprises.

VI. RULE 3. FOSTER ATTENTION BY A GOOD ELOCUTION.

Don't talk much. Don't talk loud; never scold; and seldom repeat. Talk to the point, be in earnest, and keep in mind that "words fitly spoken are like apples of gold in pictures of silver." As the magnet attracts the needle, so does good elocution attract attention. Where the elocution is good it is seldom necessary to ask attention. It is hard for any one to give attention to droning, inarticulate, monotonous, lifeless utterances.

VII. RULE 4. COMPEL ATTENTION BY RIGHT CLASS MANAGEMENT.

Each member of the class is held responsible for the entire lesson. Each one may be called on at any moment. Inattention is made a serious disgrace. Questions are asked but once. Topic and question, individual and concert answers, written and oral work, are duly intermingled. The pupils are learning, not merely reciting. Most minds are somewhat sluggish, and work well only under pressure. The skillful teacher incites without exciting; presses without forcing; instructs without repressing self-helpfulness; inspires without confusing.

VIII. RULE 5. MAINTAIN ATTENTION BY FREQUENT CHANGE OF POSITION.

If kept in one position long, it is a constitutional necessity that pupils should become restless and inattentive. Now have them stand, now sit; now have them work on the board, now explain; now have them answer individually, now in concert; now give a moment's exercise, or vary the position in some way, and thus make attention possible and pleasant.

IX. RULE 6. PROMOTE ATTENTION BY USING YOUR EARS AND EYES.

The entire class and the entire school must be seen and heard. All symptoms of inattention must be noted at once and the remedies applied. Stupid teachers who see but a part

of the class, and of the school, foster inattention. Sensible teachers will not continue the lesson for a moment without attention. The alert teacher promotes attention by always being wide awake.

X. RULE 7. CULTIVATE ATTENTION BY FREQUENCY OF REPETITION.

During each recitation, the leading features of previous lessons are required. Because they are required to use continually their knowledge, pupils learn to give close attention. Studying merely to recite is a fatal error. The lesson of to-day is forgotten to-morrow. Now, nothing can be said to be well learned until it has been often before the mind. Then, children delight to do that which they can do well.

XI. RULE 8. STIMULATE ATTENTION BY REWARDING IT.

Always have something interesting and valuable to present. The teacher supplements both the book and child's experience. He is a great student. He constantly interrogates nature. His knowledge is always fresh and sparkling; it is at once wider and more specific than that derived from text-books. He opens up to the child's mind new beauties and new wonders. Curiosity is kept active. Every energy is aroused. The pupil grows strong as well as wise, and the power of ready and penetrating attention becomes a life habit.

XII. RULE 9. SHOW THAT ATTENTION IS ESSENTIAL TO SUCCESS.

Your own observation will furnish many examples. Each successful life is an example. Each pupil's experience will illustrate the rule.

1. *Newton*: "The difference between myself and other men consists chiefly in the habit I have acquired of more completely concentrating my attention and holding it longer upon a subject than most men. Because I have acquired the power of intense and prolonged attention, I am able to accomplish what others fail to do."

2. *Dickens*: "The only serviceable, safe, certain, remunerative, attainable quality in every study is the power of attention. Whatever I have tried to do in life, I have tried with all my heart to do well. Whatever I have devoted myself to, I have devoted myself to completely. This I now find to have been my golden rule."

3. *Napoleon*: "The mind is like a chest with many drawers; when one is opened all the rest should be closed. I am able to dispatch a marvelous amount of work because with all the powers of my mind I attend to one thing at a time. When I have finished the work in one drawer I close it and open another. When I have finished and closed all, I can rest; I can sleep at once, even on the battle field."—J. BALDWIN, in *American Journal of Education*.

ROMANCE OF SCIENCE.

AN article on "Wasted Forces," by William H. Wahl, Ph. D., in the *Popular Science Monthly* for July, reads more like the pages of a romance than the sober statements of scientific achievements and possibilities. The special purpose of the paper is to call attention to the possibility of utilizing for practical purposes certain great natural forces which have hitherto been allowed to waste themselves in unproductive idleness. As an illustration of what has already been accomplished in this direction, and as an evidence that the scientific possibilities suggested are not merely the wild dreams of unpractical theorists, Mr. Wahl points out that modern science, taking pattern by nature, which allows nothing to be absolutely lost, has "succeeded in a hundred different industries in saving and utilizing materials and forces which formerly were allowed to be wasted. The glycerine industry, which has obtained colossal proportions, is a notable illustration of a great manufacture based entirely upon the saving of what until lately was a waste product of the soap-boiler. As even more import-

ant I may mention the industries connected with the manufacture of aniline dyes and artificial madder from the refuse coal-tar that was formerly the curse and nuisance of the gas works. So, too, old boots and shoes, scraps of all kinds, sawdust, oyster-shells, waste ashes, and even the mud from the bottom of rivers, have all been gathered up by the grand economy of science and by its thousand arts and processes made to do anew useful and practical service. But wonderful as are the results already accomplished, they are as nothing to those which seem more than possible in the future. Not content with saving the fragments that great human industries leave behind them, science proposes to utilize what Mr. Wahl calls the "waste forces of nature." The first of these forces, "from the magnitude of the possibilities that advanced thinkers have attached to it, is that fountain of all terrestrial energy, our sun." "I desire you to conceive," says Mr. Wahl, "of the amazing fact that the stupendous aggregate of terrestrial activity is derived from that infinitesimal fraction only of the solar emanations that is intercepted by the earth—a fraction less than the two billionth part of the sum total of energy that it is unceasingly radiating into space; and it is my immediate purpose here to invite your attention to the interesting question whether it is within human reach to convert a portion of the measureless floods of power that the sun pours out upon the earth into mechanical energy or into other forms in which it will be more directly available for useful purposes." * As showing the immense "floods of power that await the bidding of the compelling genius of invention" in this direction, the solar heat which falls upon the ocean alone "raises during every minute an average of not less than 2,000,000,000 tons of water to a height of three and a half miles—the mean altitude of the clouds. To express this prodigious exercise of power in more familiar form, I may put it in this way, that to continuously raise this weight of water to the height of three and a half miles per minute would require the continual exercise of the force of 2,757,000,000,000 horses per minute." Another of

these great natural forces which science hopes to chain to its triumphal car and compel to minister to human wants and comforts is the wind, and though Mr. Wahl admits that this may be a more difficult task than that of harnessing the sunbeams, he still thinks that there are great possibilities and even probabilities of making the wind which has hitherto been accustomed to blow whithersoever it listed blow as science may please to dictate. But the last suggestion is, perhaps, the most startling of all. It touches the feasibility of "transmitting mechanical power to great distances by converting it into electricity through the agency of what are called dynamo-electric machines, and utilizing this either for the production of powerful lights for illuminating cities and towns, or by converting it back again into mechanical power with the aid of magneto-electric engines, by which mills, factories and workshops, may be furnished with the power they now obtain from steam or water." The great falls of Niagara, it is asserted, might be utilized in this way, and two Philadelphia savants declare that "it would be possible, should it prove desirable, to convey the whole power of Niagara to the distance of 500 miles or more by means of a copper cable not exceeding a half inch in thickness." Were it not for the "accomplished facts" of science, in whose presence we stand, we should be disposed to regard these speculations with utter incredulity. But in full view of the wonders which actually surround us, who can set the limits to scientific invention?—*Exchange*.

WHATEVER else is learned or not learned, a child leaving the public school at from 13 to 15 years of age, should be able—

1. To read well and to spell well.
2. To write a neat, rapid, and legible hand.
3. To work accurately any question in arithmetic involving the four rules and interest, that may arise in the common business of life.
4. To speak correct English, and to write a letter of business or friendship neatly and correctly.
5. To use his faculties in observing the facts of the visible world around him, and to judge according to evidence.

TEACHERS' EXAMINATION.

FREDERICK COUNTY, *August, 1879.*

GEOGRAPHY.

1. Give what you believe to be the best proofs of the rotundity of the earth.
2. Name the places on the earth that have no latitude; those that have no longitude; also those having neither latitude nor longitude.
3. Name and locate two of the largest volcanoes in the world.
4. Give the mountain ranges of Asia, and state what countries are bounded or crossed by them.
5. Name the Middle States. Give the three largest cities, also their most important rivers, and locate their capitals.
6. Name the State most noted for iron, for gold, for silver, for wheat, for corn, for cotton, for tobacco.
7. Bound Frederick county, and give the election districts in it.
8. Starting at Milwaukee, what waters would you pass through in travelling by steamboat to St. Louis?
9. Under what dominion is the Holy Land at present?
10. Name the political divisions of Europe, and state which are on islands, and which are on peninsulas.

HISTORY.

1. Through whose exertions was Maryland settled? What was his design in founding a colony? Where did he first attempt to establish colonies? From whom did he obtain a grant of land? Why did he name it Maryland? His death?
2. What led to the French and Indian War? Name the three forms of government of the thirteen colonies before this war. Why was a union of the colonies necessary? What was their population at this time?
3. What important act was passed in 1765? Describe it. When and where was the first colonial congress convened? Who was president of it? How was the 1st of November kept?
4. Name the committee that drew up the Declaration of Independence. When did they present their report and when adopted? How was the news received throughout the country?
5. Where did Washington retreat after the capture of Philadelphia? Where did congress hold its sessions? Describe the attempt made to dislodge the British.
6. Name the States settled by the French, English, Dutch, Swedes and Fins, Spanish.
7. When Washington was chosen President what first demanded his attention? Who was appointed to report a system of finance? What was his plan?

8. How did John Adams render himself illustrious? When was he elected President? In what condition did he find the country? What prevented his re-election?

9. What important acquisition did the United States obtain during Jefferson's administration? Describe how it was accomplished.

10. When and why was war declared against Great Britain during the administration of Madison? Who was appointed commander-in-chief? What preparations were made for the war?

ARITHMETIC.

1. Give the rule for the multiplication of fractions; for the division of fractions. Why do you invert the divisor?

2. If $\frac{1}{3}$ of a number be subtracted from $\frac{1}{2}$ of the same number, the remainder will be $\frac{6}{5}$ less than $\frac{1}{5}$ of the number; what is the number?

3. A bought a carriage for \$200 on a credit of 10 months, and sold it immediately for \$210 cash; what was the gain per cent., money being worth 6 per cent.?

4. C bought a lot of goods; 30 per cent. of them was destroyed by fire; he sold the remainder so as to gain 10 per cent. on the entire cost of the goods; what per cent. did he gain on the goods sold? What per cent. would he have gained if he would have sold the remainder for 10 per cent. less than the entire cost?

5. San Francisco is $122^{\circ} 25'$ west longitude, and Baltimore is $76^{\circ} 30'$ west longitude; what is the difference in the time of the two cities?

6. If 24 men in 20 days, of 8 hours each, dig a ditch 90 rods long, 12 feet wide, and 10 feet deep, 4 degrees of hardness; how many men will be required to dig a ditch 350 rods long, 9 feet wide, 12 feet deep, and 3 degrees of hardness, in 24 days, of 12 hours each?

7. A travels north at the rate of 6 miles an hour, B travels west at the rate of 8 miles an hour; how far are they apart at the expiration of 10 hours, if both started from the same point at the same time?

8. A log is 40 inches in diameter: what will it square?

9. If $\frac{2}{3}$ of A's money equals $\frac{3}{4}$ B's, and $\frac{1}{3}$ of B's equals $\frac{2}{5}$ of C's, and the interest on all of their money for 4 years and 8 months equals \$497, what principal had each at interest?

10. A man bought a bill of goods for \$500 cash; a second bill, from the same house, for \$875, on 1 month's credit; a third bill for \$1850, payable in 3 months; a fourth for \$275, in 4 months; a fifth for \$1487.50, in five months; after making the purchases he preferred giving one note for the whole amount; how long should the note run including the days of grace?

GRAMMAR.

1. How does a preposition differ from a conjunction? How many parts of speech may, that, save, and but, represent?

2. Define syntax. Into how many parts is grammar divided? Name them.

3. Give rules for the use of capitals.

4. Write the possessive plurals of B, O, 7, ox, genius, lady and goose.

5. *Correct and give reasons.* Neither John or James have gone. I saw John's book laying on the table. James raised up from behind the rose-bush and gazed around, but I do not know who he was looking for, he said their was no use in their spoiling there tempers about their not going—they expected to have found their friends here.

Parse the words in italics.

6. *What nothing* earthly gives, or can destroy,
The soul's calm sunshine or heartfelt joy,
Is virtue's prize.
The Goddess heard, and bade the *muses raise*
The golden *trumpet* of eternal praise ;
From pole to pole, the winds diffuse the sound,
That fills the circuit of the world *around*.

8. Give the methods of determining the masculine and feminine genders of nouns.

9. State the points of distinction between the relative, personal and adjective pronouns.

10. How do you distinguish present participles from other parts of speech of like determination ?

PHYSIOLOGY.

1. Of what is the atmosphere composed and what are the natural means of purifying it? Why do we not re-inhale our own breath in the open air?

2. What food is necessary to supply material for the formation and repair of bone? What are the effects of an over-supply of bone earth?

3. Explain treatment of cuts by sharp instruments. How should bruises and burns be treated?

4. What is the organ of the voice, and of what is it composed? How is voice produced?

5. What organs compose the nervous system? Of what are nerves composed? With what do the nerves connect all the organs?

6. Describe the circulation of the blood, naming the cavities and valves of the heart.

7. Account for animal heat.

8. Give the number and names of the groups of bones forming the hand.

9. Locate the following: Humerus, femur, radius, tibia, ulna, fibula.

10. What are the chief seats of the sensation of touch? Where are the largest number of sentient nerves located?

BOOK-KEEPING.

1. What are bills payable? bills receivable?

2. Draw a joint negotiable note.

3. Draw an order, receipt and due bill.

4. In double entry what does the difference between the debit and credit side of merchandise account always show? What does the difference in the two sides of a personal account show?

5. Journalize the following items: Bought of James Gambrill flour amounting to \$63.30. Sold to John Gray 12 yds. of cloth @ \$5 per yd. and 3 yds. satin @ \$8 per yd., and took his note at 60 days. Paid cash for stationery and postage \$10. Sold John White 28 sheep @ \$4 per head cash. Paid James Gambrill \$50 on account. Sold Samuel Thomas 500 bus. wheat @ \$1.25 per bu., and received \$500 in cash, balance to be charged on account.

6. What is a Ledger? Rule a sheet properly, giving the use of each line drawn, for a Ledger.

7. State fully the proper method for keeping a Day Book.

8. How do you proceed to make up a balance sheet?

9. What items should be charged to profit and loss account?

GEOMETRY—First Grade.

1. Name the different kinds of triangles; what is a circle, radius, diameter, arc, sector, segment chord, tangent and secant?

2. Show at what point a radius perpendicular to a chord cuts the chord and the arc subtended by it.

3. Show the number of circumferences that may be made to pass through any three points not in the same straight line.

4. Prove what an angle formed by two tangents is measured by.

5. Bisect a given line also a given angle. Describe a square on a given line.

6. What is a square described on the sum of two lines equal to? Prove it.

7. Inscribe a circle in a given triangle.

8. When are quantities in proportion by inversion, by alternation, by composition, by division? What are equi-multiples of two or more quantities?

9. Show that a line which bisects the vertical angle of a triangle divides the base into two segments which are proportional to the adjacent sides.

10. Show that similar triangles are to each other as the squares described on the homologous sides.

GEOMETRY—Second Grade.

1. What is Geometry? Name some of the axioms.

2. What is a straight line, a curved line, a plane?

3. What is an angle? Name and describe the different kinds of angles.

4. What is a polygon? Name the different kinds; the diagonal of a polygon; the base.

5. What is a triangle? Describe the different kinds.

6. Describe the different quadrilaterals, also parallelograms.

7. What is the sum of the three angles in any triangle equal to? Prove it.

8. If one side of a triangle be produced, what will the outward angle be equal to? Prove it.

9. Show that if two triangles have two angles and the included side of the one, equal to two angles and the included side of the other, each to each, the two triangles will be equal.

10. Show that if two opposite sides of a quadrilateral are equal and parallel, the remaining sides will also be equal and parallel, and the figure will be a parallelogram.

PHILOSOPHY.

1. Name the essential properties of matter.

2. Will the action of a common pump cause water to rise to as great a height on a high mountain as at its base? Explain.

3. A cannon was fired, and eight seconds elapsed before the sound reached me; how far was I from the cannon?

4. Why does the firing of a cannon sometimes bring to the surface the body of a drowned person? Why does the body of a drowned person generally come to the surface after a time?

5. How do clouds differ from fogs? How are they formed? What is rain?

6. What is the cause of lightning? of thunder? Can you receive any harm from lightning after hearing the report?

7. Name the sources of heat. What effect has it upon matter? What effect is produced by cooling? What exception to this?

8. Why does an object in water appear to be above its true place?

9. A ball was thrown up perpendicularly sixty-four feet from the ground; what number of seconds elapsed before it returned, ascending and descending?

10. Is any power gained by machinery? Why?

ALGEBRA.

1. Explain the Binomial Theorem.

2. Reduce to its simplest form

$$\left(\frac{x + 2y}{x + y} + \frac{x}{y} \right) \div \left(\frac{x + 2y}{y} - \frac{x}{x + y} \right)$$

3. Find the values of x and y in the equations

$$\frac{x}{a} + \frac{y}{b} = 1 - \frac{x}{c} \qquad \frac{y}{a} + \frac{x}{b} = 1 + \frac{y}{c}$$

4. Solve the equation

$$\frac{x}{x+1} + \frac{x+1}{x} = 2\frac{1}{6}$$

5. In a certain school there are 306 scholars, of which $\frac{1}{3}$ study Algebra, and the numbers in the Latin, French, Writing and Reading classes are as 1, 3, 6 and 7. How many students in each?

6. A laborer having built 105 rods of fence, found that had he built 2 rods less a day, he would have been 6 days longer in completing the job, how many rods did he build per day?

7. Solve the equation

$$\frac{\sqrt{4x+20}}{4+\sqrt{x}} = \frac{4-\sqrt{x}}{\sqrt{x}}$$

8. Solve the equation

$$\frac{x}{\sqrt{a^2+x^2}} = \frac{c-x}{\sqrt{b^2+(c-x)^2}}$$

9. The sum of the first and second of three numbers is 13, that of the first and third 16, and that of the second and third 19, what are the numbers?

10. A person has \$22,000 at interest, which yield him \$1,220 annually; a part bears interest at 5 per cent. and the remainder at 6 per cent. How many dollars in each part?

EDITORIAL DEPARTMENT.

THE TAX-PAYERS' CONVENTION, at their meeting in Baltimore, on the 11th of August, adopted the following resolution in reference to the public schools: "That the public school laws of Maryland are capable of great improvement and should be amended."

After the reading of the resolution, Mr. Lawrence offered an amendment that the election of school commissioners should be by the people, and the office of examiner be abolished.

W. H. Farquaharson, of Montgomery county, asked whether the convention was prepared to specify what was a sufficient expense for the maintenance of the public schools. Let us take no step backward, he said, in this great cause of education. The school examiner is believed to be the most important feature of the public school system. The defects in it are the fault of the men, and not of the system. [Applause.]

Major Hancock, of Harford, made a rousing speech in favor of the

school system. He had no objection to the removal of what was a mere figure-head, but it is essential that the principles of human liberty should be fostered and perpetuated, and how can this be better accomplished than by the education of the young? Counties too often make the first step towards retrenchment by a thrust at the public schools. In Harford county the only effort made for economy was in the curtailment of public school expenses. In Dorchester the only step at retrenchment was to reduce the allowance for the schools, and, as a consequence, studies must cease before the winter term. The convention should dismiss every thought of striking at the education of the poor. Put down your court expenses. In Harford county these expenses amounted to \$21,000, with only three terms of court, a term lasting no more than three weeks, making, with a population of 25,000, an expense of \$50 for every day in the year. Let us apply the pruning knife to our road expenses, which are entirely too high. The expense to keep the roads in order last year was equal to the cost of fifty thousand bushels of corn. In Harford the county road expenses were \$19,000, while in Washington county, with a larger population, they were only \$11,000, and the newspapers in the county complained that even this was too much. Reduce where you choose, but in the name of the poor don't trifle with your public schools. [Applause.]

The amendment was laid on the table and the resolution as reported was adopted.

THE NATIONAL EDUCATIONAL ASSOCIATION met at the Girls' Normal School, Philadelphia, July 29, 30 and 31. The educational interests of the country were ably represented by college presidents and professors; State and county superintendents, normal and common school principals and teachers. Representatives were present from all the New England States, all the Middle States, most of the Western and many of the Southern States. Among the prominent members present we may notice Gen. John Eaton, U. S. Commissioner of Education, of Washington; John Hancock, Superintendent of the City Schools, Dayton, O.; Dr. Lemuel Moss, of the University of Indiana; J. Ormond Wilson, Superintendent of the Public Schools of Washington, D. C.; W. D. Henkle, Secretary of the Association, of Salem, Ohio; L. S. Thompson and Dr. E. E. White, of Purdue University, Lafayette, Indiana; J. L. Pickard, of Iowa; John D. Philbrick, formerly Superintendent of Schools, Boston; Prof. F. A. March, of Lafayette College; Prof. Alex. Hogg, of Texas; M. A. Newell, of Maryland; J. C. Gilchrist, Principal of the State Normal School of Iowa; Rev. Dr. Mayo, of Springfield, Mass.; Wm. T. Phelps, Principal of the State Normal School of Minnesota, and J. P. Wickersham, State Superintendent of Public Schools of Pennsylvania.

The meeting was, in every sense of the word, a success. The attendance

was large and of the best material. The papers were interesting and valuable. The meeting held separate sessions in six different parts of the building for the purpose of considering in detail the following subjects: Elementary schools, normal schools, higher instruction, school superintendence, industrial art, and spelling reform. The two latter departments attracted the most interest, and it is to be hoped that seed was there sown which shall speedily yield a bountiful harvest.

PROFESSIONAL ETIQUETTE.—It is one of the standing grievances of teachers that they are not universally recognized as *professional* people. The summer conventions, whatever they may omit, never fail to make an emphatic assertion that teaching is a profession. We do not dispute the claim. We are at least willing to admit that, *de jure*, it ought to be a profession, whether it be so or not *de facto*. Our purpose is merely to intimate to our brethren that if teaching is to be regarded by the outside world as one of the learned professions, then teachers must hold themselves amenable to professional laws, customs and courtesies. One of the most stringent of these laws is that which prohibits one practitioner from taking up the "case" of another. A young doctor who should intrude himself into a "case" attended to by another physician would be sent to Coventry. Even at the solicitation of the patient he will not interfere with the "family physician," unless in consultation, or when the latter has been dismissed, or resigns his charge. A clergyman who should make overtures for the pulpit already occupied by a permanent pastor would rightly be considered a disgrace to his cloth. Yet it is no uncommon thing to hear of teachers soliciting and intriguing for the places held by other teachers. There is probably less of this meanness in Maryland than in some neighboring States, (for reasons to which we shall allude presently) but there should be none of it. An instance came to our notice the other day. A teacher had made an engagement for the coming school year, and the contract in due form had been signed by both parties and was ready to be forwarded to the County School Board for confirmation, as required by law. Then comes another teacher, who finds that this school would be more advantageous to him than the school which he has, and persuades the Trustees to make another contract with *him*, and to forward both contracts to the School Board. Such conduct deserves the severest reprehension. The Trustees showed themselves too weak for their position; but the teacher who would thus thrust himself into the place of a brother teacher deserves to be disbarred for unprofessional conduct. It is true that the contract was incomplete so long as it was not ratified by the County Board, but the claim was valid as against all other parties until finally rejected. A few months' residence in the mining region would teach some wholesome lessons in professional etiquette.

The school law of Maryland entirely discountenances this scrambling for places. The theory of our law is that a teacher holds office during

good behavior; he may be dismissed by the Trustees; he may voluntarily resign; but not being formally and in writing dismissed; and not having resigned, he is teacher when the school opens in September as he was when it closed in July.

The form of contract authorized by the By-Laws does not specify any definite length of time, and in this way the teacher is protected against the annual scramble so common in many places, so utterly unprofessional, and so fatal to the schools. In the City of Baltimore the contract is annual; and in some counties the same custom prevails, but teachers of established reputation owe it to themselves and to their profession to place themselves on the platform of the school law; — once a teacher always a teacher, until resignation or dismissal. The system of annual engagements (where there is the power of dismissal at thirty days notice) is a useless labor on the part of the employers, and harrassing, humiliating and demoralizing to the employes.

By a typographical error, which was not discovered until after the issue for July, all the numbers of *THE JOURNAL* for last year, from December to July inclusive, were marked "Vol. VI" instead of Vol. V. With the first number of Vol. VI we resume our former custom, which was varied last year, of beginning in September. We experience considerable difficulty in reaching some of our subscribers because in some counties the schools are open from September to July, and in others from October to August, while many of the teachers only reside near the schools during the time they are open. This difficulty would be obviated if our friends would inform us promptly when changing their post-offices. We would also take it as a favor if our subscribers would advise us by postal card in case of any failure to receive the *JOURNAL*.

BOOK REVIEWS.

McGUFFEY'S REVISED READERS. Messrs. Van Antwerp, Bragg & Co., of Cincinnati have published a Revised Edition of McGuffey's Readers in new and improved typography and binding, a material increase in amount of matter and a substitution of selections from the best modern writers for many of the old lessons. The illustrations have been increased to double the amount in former editions, and all have been drawn and engraved expressly for these books by the foremost artists in the country.

The old McGuffey's Readers were not excelled in solid merit by any reading books in the world. This new edition retains the substantial merits of the old, and adds beauty and attractiveness equal if not superior to any other readers in use,

STEIGER'S YEAR BOOK OF EDUCATION, 1879. Mr. Steiger seems never to "weary in well-doing." This second volume of the Year-Book follows the general plan of the first volume, but is more minute, comprehensive and accurate. It is not confined to the United States; it contains also full details of educational movements in the British Islands and Colonies, in Continental Europe, and in Japan and some of the other Asiatic nations. Sunday Schools, as well as secular schools, receive a due share of attention, and the articles on the educational work performed by the various religious denominations make very interesting reading. The "Statistical Tables" are well arranged for convenient reference. The appendices are useful and readable; among them the one entitled "Bibliographical Bibliography" is not the least attractive, in spite of its title. What should we think of "Geographical Geography?"

GREENE'S ENGLISH LANGUAGE, (*Houghton, Osgood & Co., Boston,*) is a book that cannot be overlooked, and yet justice cannot be done to it in the few lines at our command. From one point of view, it is a most excellent work and challenges our admiration; from another point of view it is a dangerous book and one to be carefully avoided. The author takes up the English sentence and places it on the operating table. He dissects it. He divides it into its principal parts, and names them. He subdivides these principal parts, and names the subdivisions. He places the subdivisions on another operating table, and dissects them out by the help of a hand-glass. He takes the sub-sub-divisions, duly named and labeled, and dissects them out with the aid of a microscope. The analysis is exhaustive and exhausting. If any learner has the patience to follow it out to the bitter end he will have a knowledge not of English Grammar merely, but of language in general, which will make his future studies in this direction a delightful recreation. But the danger is that no ordinary learner would ever get through the book, with its *terms, classes, and orders; simple terms, complex terms, and compound terms; simple word-forms, complex word-forms, and compound word-forms; simple phrase-forms, complex phrase-forms and compound phrase-forms; simple clause-forms, complex clause-forms and compound clause-forms; simple sentence forms, complex sentence-forms and compound sentence-forms*. Not that the author does not do his best to keep the reader moving in a straight line. His definitions are as clear as crystal. As thus: "*A complex term consists of a word, phrase or clause-form, and some modifier logically combined. Now the former of these constituents is called the base. Any expression which may constitute a word-form, a phrase-form, a clause-form, or a sentence-form, may constitute a base as well as a modifier. The base and the base only determines the class of the entire term. If the base is a word, the whole term is of the word-form; if the base is a phrase, the whole is a phrase-form; if the base is a clause, the whole is a clause-form; if the base is a sentence, the whole is a sentence*". Nor are cautions

wanting to hedge the young traveler within the strict bounds and limits of scientific truth. Here is one of three: "Complex phrase-forms must be distinguished from simple *adjunctive* phrase-forms and both from *apparent* complex phrase-forms". Nothing can be plainer. But the question is not whether this analysis is not correct, ingenious and beautifully systematic (we believe it is all this) but what good effect will it produce on the minds of the young people in "Grammar and High Schools" for whom it is intended. A little grammatical analysis is useful; how much can be given without producing nausea depends a good deal on the way in which it is administered. Cabbage may be good, once in a while; but *crambe iterata nocet*.

THE "THREE PRONUNCIATIONS OF LATIN" by Professor M. M. Fisher, of the University of the State of Missouri, (*New England Publishing Company, Boston*) is an elaborate apology for the use of the English method of pronouncing Latin. The title may mislead some who may not have an opportunity of reading the book itself. There are no "three pronunciations" of Latin, as the author very clearly shows. The methods are two-fold; the practices, manifold. The first we may call the *vernacular* method; by it an Englishman pronounces Latin as if it were English; a Frenchman, as if it were French; a German, as if it were German, and so on. The second, which for want of a better name, we may with our author call the Roman method, aims at reproducing the pronunciation of Cicero and Horace. Professor Fisher gives in the last chapter of his work his "Special Reasons" in favor of the English system. They are apparently twelve in number; but when we come to read them we find that three only are in favor of the English method; the remainder, being reasons against the use of the Roman method. The positive reasons are as follows: (We find it difficult to extract them from the mass of discussions, explanations and objections with which they are surrounded, but we state them as clearly as we can apprehend them ourselves). 1. the English system of pronouncing Latin leads directly to a vigorous and thorough use of our mother tongue. 2. It leads to "accuracy in pronouncing English." 3. It makes it easier for a person to ascertain by reference to a Dictionary the right pronunciation of Greek and Latin proper names.

With regard to the first reason, we must confess that we have no clear knowledge of what the Professor means by "a vigorous and thorough use of our mother tongue," in this connection; but suppose that he means that by pronouncing Latin words as if they were English, the relation of English words to their Latin roots is more easily perceived, and their meaning more exactly comprehended. Now if the reader will kindly read our last sentence again, he will find in it at least a dozen words of Latin origin, and he will acknowledge that he never once thought of the etymology of any of them. So far then, as such words are concerned one kind of pro-

nunciation is as good as another. But if the reader will call up a word where a reference to the etymology is needed to define its meaning more sharply, he will find that the mental reference is to the printed form of the word rather than to its sound. The word *ecumenical*, for example, is referred with equal ease, to the Greek *οἰκουμένη* by the scholar whether he pronounces after the English or German fashion. A large number of English words come to us directly from the French. Does the author think it would help us to a "more vigorous and thorough use of our mother tongue" if we were taught to pronounce French "after the scôle of Stratford atte bowe?" That a knowledge of Latin helps to a knowledge of English is a truism; but that one way of pronouncing Latin can tend to "a more vigorous and thorough use of our mother tongue" than another, is utterly inconceivable.

As to the second reason for preferring the English to the Roman pronunciation, that it promotes accuracy in pronouncing English, there needs little to be said. We are assumed to know how to pronounce English; we are told to pronounce Latin in the same fashion, and we are encouraged by the promise that it will help us to pronounce English. To take one of our author's examples, and apply it to a different purpose, we are to pronounce *circunjaceo* as if it were English, and are told that that will help us to pronounce *circunjacent* more accurately.

The third reason which refers to the pronunciation of Greek and Latin proper names hardly deserves serious consideration. The author tells us that Webster and Worcester pronounce Greek and Latin proper names according to the English method: which is not only proper, but necessary since these Dictionaries are intended for those who know no language but English. But will the ability to pronounce *Cicero* after the Roman method prevent any one from pronouncing it in the usual way when used in connection with English words? If we say *Par-ee* when reading French, does that hinder us from saying *Par-iss* when reading English? And if we know how to refer to a Dictionary to learn the pronunciation of an English word, why can we not use that knowledge when referring to the Dictionary to learn the pronunciation of a Latin proper name, pronounced after the same fashion?

Much of the author's objection to the Roman method of pronouncing Latin is based on the unfair assumption that this method is to be employed at all times and under all circumstances. It is as if one should assume that because *e* final must be sounded in reading Chaucer, we must also sound the final *e* in such words as *fate*, *mere*, *ride*, *sole*. Much undeserved ridicule is thrown on the Roman method, on the supposition that Latin words *when used as English words* must be pronounced in the antique fashion. When an Englishman or an American uses the words *viva voce* in an English sentence, he is no more required to say *wee-wah wo-kay* than he is required to say *he is going to Par-ee* when he is going to Paris.

When a Latin word is transplanted into English it necessarily takes the English pronunciation, and a man of good sense and good taste will pronounce a short Latin quotation, in the middle of an English sentence, in such a way, if possible, as to be intelligible to his hearers, without regard to his own preferences. We would advocate the Roman pronunciation so called, not as being certainly the ancient pronunciation, nor as being unobjectionable on scientific grounds, but because the English pronunciation is certainly bad, and yet we cannot afford to leave our own vernacular for the vernacular of any foreign country. It is certainly desirable that there should be one and only one way of pronouncing Latin; and the only hope of attaining this end lies in the substitution of a uniform scientific system for the various and irregular vernacular pronunciations. No one dreams of seeing a Frenchman give up his pronunciation of Latin for the German. No one is so mad as to think that any European nation on the continent will give up its method for the English. It is possible—barely possible—that all may one day give up their own for one which shall be at all events an approximation to the ancient methods. To this end all true scholars should labor and not faint. We are sorry that Professor Fisher has written as he has done. That he should prefer the pronunciation to which he was used in childhood and which he has taught to thousands of students is only natural; and while we regret the loss of his influence we should not complain of his conservative spirit, so long as he confined himself to following old customs, because they were old and had to him become sacred. We acknowledge ourselves that we have a liking for the old sounds for which we were so often and so soundly whipped. We took up the new with fear not unmingled with aversion. We do not like them. We fear we never shall. But in a scientific question, personal likings and dislikings should not be allowed to intrude; and no scientific foreigner doubts that the English pronunciation of Latin is simply “horrid.” We hoped when we opened Professor Fisher’s book to see the question discussed in a calm, dispassionate, scientific spirit. We have been greatly disappointed. He has merely tried to justify his preferences by a series of special pleadings unworthy of a sober inquirer after truth, and by misrepresentations which did not deceive himself and cannot be expected to deceive others. Does he really imagine that if the reformed pronunciation were introduced into the schools, that a man speaking English would say wee-kay wayer-sah instead of *vice versa*? That he ought not so to think is evident from his quotation from Allen & Greenough: “The English method should be retained in the quoting of familiar phrases.” It has rarely been our lot to read a book upon so neutral and unsensational a subject, that was so objectionable in the spirit in which the question is treated—the spirit of a prosecuting attorney, not that of a judge on the bench.

WEBB'S MANUAL OF ETYMOLOGY (Eldredge & Brother, Philadelphia) contains the usual selection of Greek and Latin roots with the English words derived from them. The distinctive feature of the book is the liberal introduction of sentences illustrating the use and meaning of the words given. This is done on the principle that mere definitions are not sufficient to convey clear ideas of the signification of the words defined. The key, containing a brief etymological analysis of the words given in the body of the book, is a useful addition. It is a pity that some typographical device was not used to distinguish the root part of the Greek and Latin words from the termination.

Messrs. Eldredge & Brother have re-printed from the English editions a series of MANUALS FOR TEACHERS, of which the first three have come into our hands: THE CULTIVATION OF THE SENSES, THE CULTIVATION OF THE MEMORY, THE USE OF WORDS, ON DISCIPLINE AND ON CLASS TRAINING. They are small square 12mos. of less than a hundred pages each, beautifully printed on tinted paper. In these handsome settings have been placed bright jewels of common sense, pedagogical experience and philosophical deduction. Open where you will a brilliant thought will be sure to attract your attention. Here is a translation of one of Beranger's stanzas:

" Our language like our daily life,
 Accords the homely and sublime,
 And jars with phrases that are rife
 With pedantry of every clime.
 For eloquence it clangs like arms,
 For love it touches tender chords;
 But *he to whom the world's heart warms*
Must speak in wholesome, home-bred words."

OTHER BOOKS RECEIVED.

ELEMENTS OF NATURAL PHILOSOPHY. By Edwin J. Houston, A. M.
 Price \$1.25. Philadelphia: Eldredge & Brother. 1879.

EASY LESSONS IN NATURAL PHILOSOPHY, for young children. By Edwin J. Houston, A. M. Price 50 cents. Philadelphia: Eldredge & Brother. 1879.

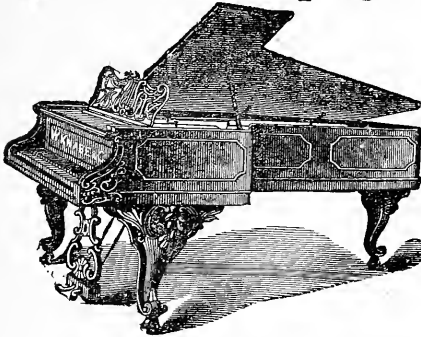
AMES' ALPHABETS, adapted to the use of Architects, Engravers, Engineers, Artists, Sign Painters, Draughtsmen, Teachers, &c., by Daniel T. Ames. New York. BICKNELL & COMSTOCK. 1879. Office, 225 Baltimore Street, one door below Charles.

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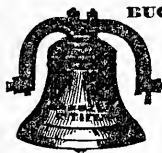
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THE MARYLAND SCHOOL JOURNAL.

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No. 2.

INDUSTRIAL EDUCATION.

Read before the Maryland State Teachers' Association, at Hagerstown,
Wednesday, August 27th, by PROF. PERLEY R. LOVEJOY, President
of the Association.

THE age we live in is an age of associations. Every profession and every trade has its guild or society. An educational association, like this for whose annual meeting we have assembled to-day, is one of the most liberal and unselfish of all such gatherings. We know beforehand how little of the time of our sessions will be devoted to looking after the interests of teachers as a class distinct from the rest of society, and how much of that time will be given to the consideration of questions of vital interest to the whole community. Teachers do not meet to organize strikes for higher wages and less work, but to take counsel how the work of our calling may be made more practical, thorough and successful. The work of education is so broad and deep that it seems to touch all human interests and make everything pertinent to its advancement. Education should prepare youth for whatever they may be required to do as men. It will not, therefore, be any departure from the purposes of this association for me to say a word to you about the learning of trades, or mechanical

education. In discussing this subject, I shall have occasion to speak of another class of associations, very numerous and powerful in our day, which have undertaken to discourage the mechanical education of youth. I mean the trades unions.

These unions are probably useful in some ways which I know not. What I here complain of is their manner of treating apprentices—a matter which I think educators should take notice of, not merely because it affects the practical education of the youth of our country, but more especially because we shall probably be compelled to change or extend our system of public education to meet the narrow and injurious policy of these trades unions. Apprenticeship has always been the practical school of the mechanic. There was no other school in which to learn a trade. Now, it seems these trades unions do not wish to have so many youths learn a trade and grow up to compete with them in doing the work of the community, so they undertake to limit the number of apprentices who shall be permitted to learn trades. They have made a rule that only a certain small number of apprentices shall be allowed in each shop. The result is that hundreds, perhaps thousands, *cannot* learn a trade, though they are desirous to do so. I have often been consulted by distressed parents as to how they can overcome this difficulty, but always in vain. The entreaties and tears of a widowed mother could not prevail against the rules of the trades unions. Even if the boss mechanic should take pity on the mother and consent to receive her son, he could not do so without ruining his business. The rules of the union require that in such a case all his hands shall leave him at once. I knew an instance of this in the case of a boss plasterer whose hands all left him in the midst of a job, because he had taken another boy to learn the trade. The owner of a large machine shop in Baltimore, who had put his own son into his shop to learn all parts of the business preparatory to managing it for himself some day, was informed by his foreman that there was already the prescribed number of apprentices in the shop, and if he kept his son there all his

hands would leave at once, even though the shop was full of work to be done. Nor would they permit any non-union man to work at the business at all. The owner of a ship-yard was waited on by a delegation of his workmen and coolly informed that they were all about to leave if he continued his habit of going occasionally into his own yard and picking some of his own oakum with his own fingers, because he did not belong to the union, whose business it was to pick oakum!

In the name and for the good of society, I protest against the making of rules to prevent the learning of trades by the youth of our country. I claim for every youth in the land the right to learn a trade if he wishes to, and to follow it, all the rules of all the trades unions to the contrary notwithstanding; and that in doing so he shall be protected against the hindrances thrown in his way by men banded together for that purpose. Under our laws I presume we cannot prevent these unions from pursuing the narrow and selfish policy which they have marked out for themselves. Our efforts then should rather be directed to neutralizing its effects upon society. If they have the legal right to continue this moral and economical wrong, then, I think, it is our duty, as educators, to recognize the situation and try to provide a remedy. That remedy will be, I think, so to change or extend our policy that trades may in some way be taught under our public educational system. To provide this opportunity seems to be only what the State owes to herself and to her future citizens.

It has been charged that the very education received in our public schools tends to discourage manual labor and the learning of trades. If there were any grounds for that charge it would be only a sort of justice that the same school system should be made to remedy the wrong which it had thus in part produced. It is certain that some intelligent and thoughtful men do contend that the pupils of our public schools are educated *above* such employments, and thus many of them are unfitted for what must be considered "their proper sphere." In this country men have no "proper sphere" except that which they can best occupy, and in choosing it no one has a

right to control another, where all have a right to choose what employment they please. But since the interests of society demand that much manual labor shall be done, a sufficient number of persons ought to be found whose proper sphere it is to do it. There is no doubt that the youth of our day are little inclined to industrial employments, while mercantile pursuits and the professions are overcrowded. This is probably because these pursuits pay best, and are thought to be more respectable. It is not the fault of the public schools, which only make the youth *capable* of something more than manual labor, and incite him to do the best he can. This disinclination to manual labor originates far back and outside of the public school. It results from the education of home, and society, and literature. The youth is everywhere met by the sentiment that manual labor is not so honorable as living by one's wits. Even here in republican America we are still halfsubordinated to the old world notion that there are higher and lower orders, or classes, in society, and that the highest class is the one which does not work with its hands; that the only gentleman is the *idle-man*.

We all of us have a kind of preference that some one else should carry home our basket, or box, or piece of board, not because of its weight, but because we would rather not be seen carrying it ourselves. We might be willing occasionally to work with our hands, provided no one should come in and catch us at it. We hasten to put off our soiled or work-day clothes to meet a visitor, ostensibly out of respect to the visitor, but really under the feeling of false pride that would not have it supposed we ever wear such clothes or do such work. Or if we admit that we ever do such work we claim that it is only for "amusement," for "exercise," or for "digestion;" for any reason, indeed, except that it is right and proper and honorable. Now, all this must be because we have some notion that to work with our hands is not quite proper and honorable, and it is mainly this sentiment in the community that keeps back our youth from industrial pursuits. We are all more or less at fault in this respect, even though we do profess to honor industry—in some other man ;

and I think we really do honor Putnam and Cincinnatus the more because they came from the plow to do their great deeds, and returned to it after the grandeur of the performance. When shall we come to acknowledge that hand-work and head-work are equally honorable if both are done with equally good and honest purpose; that the sons of toil need not be ashamed in the presence of the sons of thought; and that both, for every good purpose in the world, stand far above the gentleman or idle man?

We teachers do not take pains enough to counteract this false sentiment in our pupils. There are lessons enough in our school books on which to base such instructions if we will only use them. From a well-worn book used in my own school I read that Newman Hall says: "There is dignity in toil—in toil of the hand as well as toil of the head; in toil to provide for the bodily wants of an individual life as well as in toil to promote some enterprise of world-wide fame. All labor that tends to supply man's wants, to increase man's happiness, to elevate man's nature—in a word, all labor that is honest is honorable too. There is nothing really mean and low but sin. Labor allied with virtue may look up to Heaven and not blush." If we approve of these sentiments let us teach them to our pupils. A writer quoted in the July number of the *Maryland School Journal* says: "We should stop telling boys that they are to become clerks, lawyers, doctors, preachers, judges, governors, congressmen and presidents. Let them understand that these places are over-crowded now, and that the great majority of them, whether rich or poor, willing or unwilling, must earn their bread with their hands, guided by their brains." Let us educate the minds and hearts of our pupils to guide, but not to despise, the work of the hands, and when at last there shall be established in every county or in every Congressional district of the State a school of trades, pupils will be found ready to enter upon a course of honorable industry rather than the one of half-educated idleness for which they are now preparing, and above which, without the aid of such a school, they will never rise.

ADDRESS OF JOHN V. L. FINDLAY,

Before the State Teachers' Association, Wednesday Evening, the 27th of August, 1879, at Hagerstown.

THE home and the school-house are the chief objects to which memory, as the years wane, turns with the fondest satisfaction. It was a saying of Sydney Smith that the instructor of youth should see to it that the time of his pupils passed pleasantly, because in the retrospect this happiness could be repeated and enjoyed, and that there would be, therefore, a sort of double felicity imparted by a single act as faithful in the echo as in the original sound. But whatever may have been the sensation of others, my own experience confirms me in the belief that the recollection of placid school days, like an even and uneventful tenor in one's home-life, does not titillate the memory and arride the midriff, as Lamb has it, with that pungent sense which is so necessary to the fullest and keenest enjoyment.

Half of the pleasure of life which a man enjoys in looking back over the road already travelled is made up of the recollection of labors undergone and trials suffered, accompanied with the sweet consciousness that he will be called upon to undergo and suffer them no more. There is always a keener relish in a sense of escape, in having a dangerous operation over, or in surmounting a difficulty apparently insurmountable, than in a mere passive state of undisturbed tranquillity and peace of mind. I don't know who the Reverend Doctor's teacher was, but I am satisfied that if he was instructed according to his own rose-watered formula, and never enjoyed the luxury of being laid over the bench, his sensations in recalling old school-days were flat and insipid compared with the emotions of Coleridge, under the lively recollections of Boyer's lash.

So a boy who remembers his home-life as a peaceful current flowing gently along without hindrance or obstruction through flowery meads, between green banks and fanned by favoring breezes, enjoys the recollection doubtless, but cannot share in the robust sensations which his fellow-traveller through life

partakes, who has been fanned by something else, a slipper, perhaps, or a rattan, for some youthful indiscretion the memory of which, like all the Devil's spices, smacks yet pleasantly to the taste. There was a boy, now, poor fellow, dead and gone, whom I used to envy for the unctuous richness with which a certain school-day's scene must have lingered upon the palate of his memory.

His father was a blacksmith, and wore, when engaged at his work, a thick, heavy, leather apron. The son was given to playing truant, and after repeated admonitions, had been finally warned that another repetition of the offence would be followed by the punishment of the bench, before alluded to, and which, in our day, was regarded as a torture more to be dreaded than the "strappado and the rack." But true to that rule of our nature, that things present do ever affect us more than things remote, Mr. Jesse Thompson (for I violate no confidence in giving his name) jumped at the first temptation that fell in his way as a trout jumps at a fly, and being caught was soon dangling at the end of the rod of Mr. James Allen, our school-master, and a most expert angler for boys. The victim was not landed, however, without a struggle, in which Jesse illustrated the great fact that defensive warfare keeps step with the most ingenious methods of waging war offensively; that increase the calibre of your guns, and the weight of your metal, as you will, the instinct of defence will invent some means of resistance which, in its turn, will have to be overcome by some new appliance. So it was here; for when Jesse was laid upon the altar, face downwards, and was nicely balanced upon the bench, and the executioner, after feeling his rod clear to the end to see that there was no flaw or crack, let fall a blow with all his art where, in better times and under happier auspices, it would have done the most good, and which tingled in the nerves of every sinner of us, who did not know whose turn would come next, the party most concerned of all, while he was too shrewd to fail to respond altogether to the blow, kicked out mechanically, as it were, and without that lively

spontaneity of by-play which the situation called for, and generally in such a forced and unnatural manner as to arouse suspicion and challenge investigation. The result of this was, that, when Mr. Jesse Thompson was peeled like an onion it was discovered that he had invested himself in several pairs of trowsers, and then underneath all had carefully tucked his father's apron, where his father never wore it, and thus panoplied and integumented, lay as snug as the First Lord of the Admiralty in an iron-clad.

But here—

“My muse her wing maun cower.

Sic flights are far beyond her power.”

An hundred recollections start up at the suggestion of these scenes. I recall the old school house on the street at the top of the hill, the wooden bucket that stood in the corner of the room, and out of which, in true republican simplicity, we dipped the water with a rusty old tin-cup common to all; the raised platform, where our sovereign sat, and from which coigne of advantage it was easy to detect evil-doers, and summon them to the bar of judgment, by a plan all his own. This consisted in throwing his stick at the offender, as true to its mark as the spear of a Zulu, when it became the duty of the culprit thus designated to return it, with the privilege of dodging the blow, if he could, but like Patrick's shillalah it seldom or ever missed fire. I recall particularly our spelling battles when under chosen captains all the scholars were ranged on opposing benches, with what was called a dead bench between, and how we spelled and defined all day long, from abandon to *viva voce*, in Comly's spelling book, three misses making a dead man and the dead bench growing longer and longer as the evening shadows fell, as the city of the dead trenches upon the city of the living, until none but the captains were left with pale faces and husky voices, sole survivors amid the broken columns of the morning's proud array.

Then we varied the monotony of spelling on some chosen day with a performance that, I believe, has gone out of vogue

altogether, and which our worthy teacher called "Singing Geography." Whatever taste for music I have since developed I must in justice attribute to that early exercise which, if not effective, was certainly unique. We sang the names of the States and their capitals, rivers and their lengths, mountains and their heights, oceans and archipelagos, islands and capes, on a scale that truly may be said to have been continental, and to every imaginable tune, from Dan Tucker to Old Hundred, very much like Sam Weller's spelling, according to the taste and the fancy of the singer.

Alas! Alas! the voices that then echoed in this wild melody, which now are still, are more than the voices that speak to-day, and the hand of him who gestured this strange music has long since moldered into dust. If for a moment I draw aside the veil and disclose the stage where these high fantastic tricks were played, it is with no indecent or irreverent hand, but with the high purpose, however lame the execution, of illustrating what I humbly conceive to be a defect, or what certainly was in my time a serious defect in our system of primary instruction. This defect may be described in general terms, as a failure to teach the elementary branches, as a means to an end, instead of as was the case then, and is still practiced, I believe, as an end in themselves. I was taught, for example, the mere art of reading, and was then left to myself to find out the uses and objects of this art. So instruction in writing was limited to the manufacture of the conventional pot-hooks, and then to the formation of letters, but it was left to dawn haphazard upon my own consciousness how this noble art would enable its possessor to perpetuate his thoughts and clothe the fleeting breath in permanent forms. Arithmetic was the art of counting, but the mode of its application, and the uses to which it could be applied were all matters to be thought out by the scholar himself. As to Geography, it was a jumble of names and places, a mere exercise for the memory, as dry and uninteresting as Homer's catalogue of the ships.

Education, of course, as an art, has a double purpose, not

only to instruct but also to strengthen and discipline the faculties. It proposes not only to fill a boy's head with useful knowledge, but also to train and enlarge his capacity for future acquisitions. But the prime object should be to impress upon a boy's mind, by constant iteration and reiteration, that the scientific end of education is to enable the student to educate himself, that the elementary branches in which he has been instructed are but the keys to the treasure house of Knowledge, the sesame by which her doors are to be charmed open, but by no one except himself.

Most boys by a sort of undertow are carried far out to sea, as to the true aim and end of education, at the very time they are engaged in receiving their first and only instruction. They come to regard it as something to be put on from the outside, and instead of growing from within, as a tree grows, are plastered or veneered with a thin coating of the three R's. The consequence is that as soon as they are subjected to exposure and rough work the veneering cracks, and falls off piece by piece, until there is nothing left but a plain worm-eaten old box, for what, in its day, was considered perhaps as fine a piece of cabinet work as ever went out of the shop. I hold that the boy who has been made to understand that the ministry of the school is only to aid in the development of his own powers, knows more and is better educated in the true sense of the term, although he has learned nothing else, than his fellow-student whose head is crammed with a miscellaneous and indigested assortment of all the humanities. It may be replied to this that it is more necessary that boys, who have to go to work as soon as they leave school, should be equipped with a knowledge of facts rather than principles, because the means and opportunities of education are left behind them with their slates and books at the school house. The argument, in other words, is that inasmuch as by far the greater proportion of boys must engage at an early age in industrial pursuits of some kind, the kind of instruction that they most need is that

which will fit them for an immediate discharge of their duty in the particular occupation to which they may be called. Doubtless, there would be great force in this argument if it could be foreseen what the career of each boy from the beginning to the end of life would certainly be. But this is a secret that the Supreme disposer of events jealously reserves to Himself. It may be calculated with tolerable accuracy how many boys out of a given number will be clerks, farmers, mechanics, laborers or professional men, but what particular boys will pursue these avocations, or taking them up will continue in their pursuit, even the shrewdest observer of character will fail to predict. It follows from this, I think, that that system of instruction is best, which, while not neglecting the duty of imparting knowledge, has for its cardinal object the training of the mind in the conscious and intelligent exercise of its own power. The neglect of this causes many men to be educated backward, as it were, by learning from experience the uses of many things which should have been taught as the principal end in the original scheme of instruction. I am well aware that I am advancing nothing very novel or original, that all the ground has been gone over and over again, and that, particularly in a body like this, it must have received frequent consideration, and that any elaborate attempt, therefore, at discussion would be ill-timed and placed. I only wish to throw into the general treasury an offering drawn from my own experience and observation, throwing myself upon your charity to receive the contribution in the same spirit as the widow's mite. There are one or two other topics that I have always felt a desire to say a word or two about, if a suitable occasion offered.

The genius of this country is the exaltation of the masses. Theoretically, all government is instituted for the promotion of the welfare and happiness of the governed. This is an instinct common at least to civilized nations, but in the United States, both collectively and distributively, this instinct has expressed itself in written constitutions and in all the institu-

tions of the people. Existing elsewhere by force of tradition, it exists here by force of law, written not merely in the hearts of the people, but in solemn covenants, ratified and adopted by every form of popular sanction. Constitutions, of course, are only the expression of the institutional idea, and, therefore, in one sense are the products of growth; but in another sense, having regard to the mode of their creation, and the manner of their adoption, may be considered as things made—as manufactures.

The people made them originally, add to them or repeal, or make them over again as they see fit. As long as they continue in operation, they are dependent upon officers, elected by the people to enforce them. The people, therefore, are not only the sources of power from which the streams of government originally flow, but are the grand reservoir into which all of these currents discharge, and by which they are in turn perennially supplied. The ocean is the fit symbol of popular government in this country. All that comes out of it goes back into it again, in a perpetual round of renewal and exhaustion. Suffrage is the salt of this ocean, and as we know that the waters would lose all their life, and seethe and fester in poisonous corruption, if the salt should lose its savor, so government can be kept pure and sweet only by maintaining the integrity of the elective franchise. What is usually termed politics, as well as religions, are matters for fireside culture, and can never, in the nature of things, become objects of instruction in the public schools supported by the common purse. But as it would be comparatively useless to teach a boy the nature of despotic government, as a subject of which he will have nothing to do but to pay its taxes and bear its burdens, so it seems to me to be a great oversight not to instruct our boys in their duties as citizens, who will not so much *live* under a government, as *make* it.

I am not advocating now that higher instruction which includes social and economic questions, and even the partial mastery of which would give us better legislation, both at Wash-

ington and at Annapolis; but I am going back to first principles, A, B, C's of popular government, the pot books and the multiplication table of the future citizen. Neither am I speaking with reference to those whom fortune has biessed with the means of obtaining the higher education afforded by our Colleges and Universities, nor even our Academies and Preparatories; but I am digging down to the granite foundations upon which the superstructure of our government rests, the masses of the people, whose instruction is limited to what they can pick up at the common schools. Here I am afraid it is too often forgotten that man will be called upon not only to read, write and count, in the discharge of the ordinary business of life, but that in the relation of a citizen to a government whose laws he helps to make and enforce, there will be quite as responsible duties to perform, as the accumulation of money or the maintenance of a family. It is, in fact, but little thought of in the complex character which a man bears to the world of matter and spirit, and for the fulfilment of which education in its highest sense is designed to fit him, that in all of these relations, however difficult and delicate, there is none that implies more serious responsibilities, or, if misunderstood, entails more serious consequences than this relation of citizenship to a free and popular government. It is an education which the mass of the people do not receive at home, for the simple reason that the home folk have received but little instruction upon the subject themselves, and are, of course, disqualified for imparting it to others. There is plenty of Republican or Democratic politics, as it is called, to be learned there, but sound instruction as to popular suffrage in its relation to government can hardly be expected. For this reason the necessity becomes more imperative of imparting instruction of this kind in the common school. Every teacher, as he takes charge of a pupil, should bear in mind that in a few years the boy will be a voter, and not merely a man; and should proceed to instruct him at once in connection with large views, drawn from the nature of our

government and the dignity of citizenship, that a ballot not only counts one for every measure for which it is cast, but that he who attempts to make it count two is a criminal of the deepest dye, to be shunned by his fellow-men, and to be visited with the severest penalties of the law.

Patriotism, religion and friendship are all sentiments, closely connected with the generous impulses of youth. It is a well-known fact that as men grow older they are less religiously inclined, and it has almost passed into a proverb, that acquaintance is the diversion of age, but friendship is the tie of the young. None the less true is it, that the age when the affections, led by rudimentary instincts, not chilled as yet by the cold experience of the world, run wild over every sentiment that is noble and generous, as vines cluster and clamber around any support that will lift them higher into the air and sunlight, is the period of all others, to root the heart of the citizen at the main pillar of the government, as we plant the ivy at the base of the roof tree. Let no man think that this suggestion springs from an idle fancy or from an exaggerated sense of alarm. There is a spirit abroad in the country, which if not put in course of arrest, and final destruction, bodes more danger to our free institutions than the widest rebellion upheld and supported by the bloodiest wars. It is a subtle, devilish spirit, operating by means of the most dangerous instrument that assails modern society. It is the spirit of treason against the ballot-box, working like a mole in the dark by fraud.

I pronounce it treason, because the only treason known in this country, where there is neither King nor Kaiser, is the compassing of the death of the State. I say it works by the most dangerous agency, because fraud is always more dangerous than violence. I say it will necessarily result in the subversion of our institutions, because it undermines the very foundation upon which they rest. The law, although teeming with penal provisions, affords no real remedy for this serious and growing crime. No law is ever enforced which is not

sustained by a healthy public opinion, and it is just here where our election laws are weakest. A piratical sentiment has grown up in our midst that all is fair in politics, as everything is said to be fair in war or love, and in this way the sanctity of suffrage has almost been destroyed. What we want is to re-suscitate and re-animate the forces that lie back of the law. It is not law that we want, but morality. Something to invigorate and stimulate the public conscience, until every man is made to feel that the polluter of the ballot-box, like the polluter of chastity, should be scourged from the face of the earth.

I think I have shown, as society is now constituted, that we cannot look to the homes of the people as the source of this instruction, and as youth is the spring time for sowing this seed, it can be cast and tended by no other hands so well as by you, gentlemen, who next to parental influence wield the greatest power in molding the character and shaping the destiny of the youth of the country. Of course, in engaging in this work, you would shun the suspicion of partizanship as you would the plague. It would be your province to impart correct ideas as to the uses and dignity of the ballot, leaving the pupil, without the shadow of restraint, to the exercise of his own choice between the great parties of the country.

But you would see to it that he went out from your care impressed with the elevated views, as to the value and significance of the elective franchise, which were rather ludicrously expressed by an old darkey in Virginia, in his blind worship of an unknown God. "Boss," says he, "have I voted?" after he had deposited his ballot for the first time. "Yes," replied the Judge. "Then," says he, as he threw his arms towards heaven, "Angel Gabriel, come! I am ready to go up." So I think every man should be taught to approach the ballot-box with that serious sense as to what he is doing, which accompanies the gravest acts of his life, and that he should be made to feel the same reverential horror at the idea of fraud or violence daring to show itself in this sacred presence that

he would experience at an outrage upon the altar or the communion table.

It is a narrow view of the subject, however, to suppose that ethics in the school house are to be confined to an education in the principles of a sound political morality. There is a much wider field upon which they may be successfully deployed by the zealous and thoughtful teacher.

Cunning, which Bacon has defined as a "crooked wisdom," has grown to be the ideal standard of excellence by which the youth of the country are too much accustomed to test and measure practical achievement. A shrewd man, as he is called, is the embodiment of all excellence; a successful man, it matters not by what means, is the person upon whom hero worship lavishes its devotion. The vices of modern society originate in cunning, and are colored by all of its characteristics. It is the age of intellectual subtlety manifesting itself in ingenious contrivances to accomplish its ends, without resort to violence or an open violation of law. You look around and you observe that a large part of the business of the world is carried on by joint stock concerns, in which the individual is merged in the abstract entity of the corporation, and the sense of personal responsibility and personal honor correspondingly depressed. It is a fact that the sense of crime weakens in the ratio of the numbers engaged in it. Multiply rioters and they become revolutionists, wage murder on a large scale and it is war. And so a single act of theft is larceny, but corporate frauds, particularly when conducted on a scale of millions, evaporate and vanish in some mild euphemism, such as watered stock or over issues. An individual obtains money or goods on the faith of representations that turn out to be untrue, and it is a case of indictable false pretences. A Railroad Company scatters among a confiding public its worthless bonds "as thick as autumnal leaves in Vallambrosa strewn," and it is a case for a receiver.

Our municipal governments and legislatures, as a general rule, are devoid of a high sense of public duty, and in too

many instances are but the fit representatives of the constituencies that are behind them. This very month we have witnessed the humiliating spectacle of a sovereign State in this Union solemnly voting down a proposition of compromise with its creditors, which in itself was a repudiation of two-thirds of a debt honestly contracted and faithfully applied.

But it is useless to multiply instances of this wide spread corruption and fraud.

It is apparent to all that the morale of our people has fearfully deteriorated, and if not sooner or later restored to a healthier tone, will precipitate us into an abyss of disgrace, the depths of which no eye can measure or foresee. Here again I look to the school house for aid, if not for relief, and I appeal to the schoolmaster, not as the teacher of the primer and the arithmetic, but as the governor of a little republic, a social and political microcosm, where there will be constant occasions to illustrate and enforce the great principles of morality, from fresh examples arising out of the daily intercourse of the pupils with each other and himself. Not a day passes in a school without the occurrence of some incident which an intelligent and conscientious teacher could make use of in inculcating those virtues which will make, not a shrewd, but a good and an honest man. It is too generally assumed that this is a domain peculiarly for home culture, and that it is thoroughly tilled and tended at the fireside. Even if it were true nothing would be lost, but much would be gained by supplementing instruction received at home by precept and example at the school. But as matter of fact, home in a multitude of cases not only teaches nothing that is valuable, but in many instances teaches much which is best learned by being forgotten.

Just here I think is the great fault of modern education. It is partial and one-sided, and leans unfortunately on the side of that tendency, to which I have before alluded as the disposition to cultivate the intellect at the expense of the soul. As it is a well known fact that neither the mind nor the body

will grow without proper exercise and nurture, so it is equally true that the moral nature of man will not develop of its own motion, automatically, and without proper control and direction.

So, too, it would seem to be true that as certain parts of the body, by habitual exercise, may be developed at the expense of others, it is possible to dwarf and debilitate the moral nature by too assiduous culture of the intellectual faculties. As the deprivation of one sense is said to stimulate another; as the loss of eyesight, for example, quickens and intensifies the sense of hearing, a neglected and withered conscience may pass over its vitality to invigorate and strengthen the powers of the mind. It is said that the old and the young ought not to sleep together, because the nervous power of the strong is absorbed by the weak, and so, by a reverse process, a sound and vigorous intellect may suck out and appropriate the vital force of an enfeebled conscience. A republic all head and no heart cannot live. It is a rudderless ship on a stormy sea in a starless night. A recent writer in the *Westminster Review* has shown how the progress of the Aryan race, represented by its great western families, has been marked by a constant effort to disentangle individual rights from the common mass, and assign them in severalty to their respective owners. The tendency of this effort has been to individualize man, and so far to disentangle what Hobbes calls the social rack. It matters not by what solvents this steady work of decomposition has been carried on, the fact is apparent that at no time in the history of the world has the individual, both in his person and estate, been so free from the restraints of hereditary bondage, and that no where in the world is this freedom so perfect as in the United States.

But emancipation from the servitude of to-day is no guaranty of liberty to-morrow. There is in this confused social economy of ours a perpetual war going on, in which Providence, out of ill, still finds means of good; but still leaves the spirit of darkness to work his mysterious will in ways that perplex the reason and unsettle the faith. Like a strong man,

buffeted by the billows and making for the shore, every wave that casts humanity forward is followed by a resistless ebb that sweeps it back again far out to sea. The cultivation of the intellect marks, of course, a long stage in the career of human progress, and personal liberty is one of the great distinguishing features of modern civilization; but both are centres of force equally effective for good or ill. They are like the wild forces of nature before they have been captured and tamed by art. Everything depends upon the power that directs them.

Knowledge is power, says Bacon; but it is as much power in the thief, or the murderer, or the ballot-box stuffer, as it is in the hands of the most virtuous and orderly citizen. A locomotive will obey the trained hand of an escaping convict from Sing Sing and carry him and his companions off, just as swiftly as the excursion party that starts for a camp-meeting or a pic-nic in the woods. Powder will blow up a safe for a burglar, or blow a man's brains out for an assassin, as readily as it rends the rock to make way for the railroad and the turnpike. That subtle and mysterious force that brightens with its intermittent smile the evening cloud like a glow worm, or drops in golden bolts from the zenith to the nadir, and smiles as it flashes, will stoop to bear upon its invisible wings, under the sea and through the air, messages of love or hate, of honest dealing or dark conspiracy. Art, like heaven, pours its showers or sunshine upon the unjust and just alike. If we look to the great end of being, to that high purpose for which the Almighty created us, and without the attainment of which life is a farce and a failure, if we measure power not by what it can, but by what it ought to accomplish, then knowledge alone is not power; then the only power is conscience, duty, truth, reverence, the love of God and the love of man. Without these virtues the gorgeous structure, which materialism is now erecting upon our soil, like the pyramids, will not be a temple for the living, but a splendid mausoleum for the dead.

THE DAILY GRIND.

THERE are times when every man whose life is devoted to a single occupation tires of it, and utters impatient protests against the "daily grind" that is wearing out mind and body. He sighs for anything but the treadmill upon which he performs a daily march with the knowledge that to-morrow and for many morrows, probably until for him the wheel revolves no more, the same steady tramp, the same daily grind, will continue. The hod-carrier, whose life is a perpetual march up a ladder and down again, the mechanic at his lathe, the clerk at his desk, the merchant at his books, the lawyer at his briefs, the journalist who has scarcely time to glance at the paper just issued whilst working for the paper to come out next morning—all performing the labor of Sisyphus in rolling the stone to the top of the hill only that it may roll down again, each has his moments of weariness and disgust when he sighs for escape from his monotonous toil. Poor Charles Lamb, standing for long and weary years at his desk in the India House, cried in a moment of impatience not frequent with that patient, self-sacrificing spirit, that "the wood was entering his soul," and the feeling has been shared by thousands under similar circumstances, though they may not have given it like expression.

But, after all, the daily grind is not wholly an evil. In the majority of cases it is not an evil at all. There are occasions where it proves a positive good. With few exceptions the human mind works best in harness. The man who has a fixed occupation, and who devotes himself faithfully to it, is, in ninety-nine cases out of a hundred, on the safest road to material success, and certainly pursuing the best course for his mental health and comfort. It is not the monotonous daily grind that wears out a man so much as the excitement and anxieties of a more unequal life. In the former case the faculties may be kept in full play, and yet the work is performed with but little strain, because the mind by long use has become

trained to perform much of the labor unconsciously. The hardest mental workers have lived to good old age, and preserved their physical and mental strength to the last by recognizing this fact and acting upon it. Their labor was systematized, so that it became, in great part, routine work, a regular "daily grind" that kept their minds in full activity without undue strain. It is not the steady pace that wears out the horse, but the "spurts" which call for sudden and exhausting expenditure of muscular force. A well-constructed machine, kept in steady use at uniform speed and with the strain to which it was adapted, will last longer than one suffered to lie idle at times, and then subjected to sudden and unequal strains. It is the same with the human mind as with the horse and the machine.

The great value of the daily grind is seen in periods of bodily suffering or mental distress. Work, steady, unceasing work, labor that must be performed, is frequently in such cases the salvation of the sufferer. Through force of habit, the mind, almost mechanically, bends itself to the accustomed task, and in performing it the pain is partly forgotten, the mental agony dulled. No better anodyne for mental distress exists than steady work of an accustomed character. Without its saving influence many a man has succumbed to dull despair, or sought relief in excitements that result in physical and mental ruin. Although Charles Lamb uttered his impatient protest against the desk which exacted of him the daily grind of routine work, that daily exaction probably kept him from brooding over the sad tragedy which had darkened his home and made his life one long sacrifice and continuous painful anxiety. He was but one of the many who, under the continuous strain of anxiety and mental distress, found their greatest help in the "daily grind" of unremitting labor.—*Cleveland Herald*.

GLASS windows were first introduced in England in the eighth century.

A BLADE OF GRASS.

GATHER a single blade of grass and examine for a minute its narrow sword-shape strip of fluted green. Nothing there, it seems, of notable goodness or beauty. A very little strength, a very little tallness, a few delicate long lines meeting in a point—not a perfect point, either, but blunt and unfinished—and a little pale hollow stalk, feeble and flacid, leading down to the dull brown fibres of the roots, by no means a creditable or apparently much cared for example of Nature's workmanship; made, as it seems, only to be trodden on to-day and to-morrow to be cast into the oven. And yet, think of it well and judge whether of all the gorgeous flowers that beam in summer air, and of all strong and goodly trees, pleasant to the eye or good for food—stately palm and pine, strong ash and oak, scented citron, burdened vine—there be any by man so deeply loved, by God so highly graced.

But where does this priceless treasure live? It occupies a wider range than anything that is brought forth on the face of the earth. It adapts itself to the extremes of temperature in every zone, and it draws the means of support from every soil. It goes beyond the most adventurous explorer among the icy regions of the north. It creeps higher on the mountain side than the foot of man has ever climbed. No island of the sea has been discovered so far remote from land as not to have been sought out by the springing blade of grass. We try in vain to expel the gentle intruder from the paved streets and crowded walks of the great city. It steals in the dark alley with a cheery smile to tell the poor and afflicted that God has not forgotten them. It comes up, peeping timidly over the edge of the curbstone, where silken robes and shining equipages go flashing by to show the rich in their pride, and the youthful in their beauty, that God arrays the frailest things of earth with a glory surpassing their own.

And well does it fulfill its mission. Consider what we owe merely to the meadow grass; to the covering of the dark

ground with those countless spears. The fields! Follow for a little time the thoughts of all we ought to recognize in these words. All spring and summer is in them; the walks by silent, scented paths, the rests in noon-day heats, the joy of herds and flocks, the power of all shepherd-life and meditation, the sunlight upon the world falling in soft blue shadows, where else it would have struck upon the scorching dust; soft banks and lowly hills, crisp lawns all dim with early dew, dinted by happy feet, and softening in their fall the sound of loving voices, all these are summed up in those simple words, the fields. And this is not all. We may not measure the full depth of this heavenly gift in our own land; though still as we think of it longer, the infinite of that meadow sweetness, Shakespeare's peculiar joy would open on us more and more; yet we have it but in part. Go out in the spring-time among the meadows that slope from the shores of the Swiss lakes to the base of the lower mountains. There, mingled with the gentians and white narcissus, the grass grows deep and free; and as you follow the winding mountain paths, beneath arching boughs all veiled and dim with blossoms—paths that forever droop and rise over the green banks, sweeping down in scented undulation steep to the blue waters, studded with new-mown heaps, filling all the air with fainter sweetness—look up toward the higher hills where the waves of everlasting green roll silently into their long inlets among the shadows of the pines, and we may, perhaps, at last know the meaning of these quiet words of the one hundred and forty-seventh Psalm: "He maketh grass to grow upon the mountains."

THE first telegraph instrument was successfully operated by S. F. B. Morse, the inventor, in 1835, though its utility was not demonstrated to the world until 1844.

THE first Union flag was unfurled on the 1st of January, 1776, over the camp at Cambridge. It had thirteen stripes of white and red, and retained the English cross in one corner.

OBSERVATIONS.

BY A PUPIL TEACHER IN A MODEL SCHOOL.

The room was very neat, and the articles within it tastefully arranged.

The signals were given in a decided manner, and were promptly obeyed.

The pupils were not allowed to communicate with each other in the teacher's presence, and they did not take advantage during her absence from the room.

The pupils were not allowed to ask the teacher a question without first raising the hand, and obtaining permission to speak.

After the pupils had performed the work assigned it was criticised by the class, and the pupils themselves were required to make the corrections.

The exercises were changed very often so as to prevent the pupils from getting tired.

Every pupil seemed to be busy with his own work.

The pupils were taught not to laugh at each other's mistakes.

The teacher was very careful of the language which she used before her pupils, and all their grammatical errors in conversation were corrected.

During a History lesson, when the pupils commenced to get sleepy, it was immediately changed to Mental Arithmetic, and the lesson was not resumed until the pupils had become wide awake. The pupils were always spoken to in a pleasant, but firm manner.

The lesson in Geography was not all Geography; a little history and some stories were brought in to make the lesson pleasant and prevent it from becoming monotonous.

The teacher seemed to know at every moment what each pupil in the school was doing.

C. E.

GOLD was discovered in California in 1848.

HOW OLD IS THE WORLD?

GEOLOGISTS, astronomers and physicists alike have hitherto been baffled in their attempts to set up any satisfactory kind of chronometer which will approximately measure geological time, and thus give us some clue to the antiquity of our globe. It is therefore worth noting that Mr. Mellard Reade, of Liverpool, has lately contributed to the Royal Society a very suggestive paper, in which he endeavors to grapple with the question by employing the limestone rocks of the earth's crust as an index of geological time. Limestones have been in course of formation from the earliest known geological periods, but it would appear that the later found strata are more calcareous than the earlier, and that there has in fact been a gradually progressive increase of calcareous matter. The very extensive deposition of carbonate of lime over wide areas of the ocean-bottom at the present day is sufficiently attested by the recent soundings of the "Challenger." According to the author's estimate, the sedimentary crust of the earth is at least one mile in average actual thickness, of which probably one-tenth consists of calcareous matter. In seeking the origin of this calcareous matter, it is assumed that the primitive rocks of the original crust were of the nature of gigantic or basaltic rocks. By the disintegration of such rocks, calcareous and other sedimentary deposits have been formed. The amount of lime salts in waters which drain districts made up of granites and basalts is found, by a comparison of analyses, to be on an average about 3.73 parts in 100,000 parts of water. It is further assumed that the excessed areas of igneous rocks, taking an average throughout all geological time, will bear to the exposures of sedimentary rocks a ratio of about one to nine. From these and other data Mr. Reade concludes that the elimination of the calcareous matter now found in all the sedimentary strata must have occupied at least 600,000,000 of years. This, therefore, represents the minimum age of the world. The author infers that the formation of the Laurentian,

Cambrian and Silurian strata must have occupied about 200,000,000 of years; the old red sandstone, the carboniferous, and the poikilitic systems, another 200,000,000; and all the other strata, the remaining 200,000,000. Mr. Reade is, therefore, led to believe that geological time has been enormously in excess of the limits urged by certain physicists; that it has been ample to allow for all the changes which, on the hypothesis of evolution, have occurred in the organic world.—*London (Eng.) Academy.*

FIRST LESSONS IN BOTANY.

XI.—FERNS.

Teacher.—What part of the fern plant is this which I hold in my hand?

Pupil.—It is the leaf.

T.—Then where is the stem of the plant?

P.—It must have an underground stem.

T.—See if you can find the stem in this plant.

P.—This thick brown part must be the stem, for the leaves all start from it.

T.—Yes! this is the subterranean stem, or *rhizome*, as it is called, but where is the root?

P.—The thread-like fibres growing all along the stem must be the roots.

T.—Notice that they branch off into much finer fibres and form quite a mat in the ground, while the leaves shoot up into the air and are the only parts we generally see; but look at the under side of the leaf.

P.—The leaflets, especially those near the end, are almost covered with little brown spots.

T.—Look at one of these brown spots with a microscope. You will have to look very closely.

P.—I see that it is like a bunch of little seeds.

T.—Do the seeds fall when you shake the leaf?

P.—No! they are attached to the leaf by little hairs.

T.—These little bodies are the fruit of the fern, for there are no flowers to bear fruit, on ferns, as on other plants we have studied. Heretofore we have studied plants belonging to the sub-kingdom *Phænogamia* or flowering plants; but the ferns, mosses, etc. belong to the sub-kingdom *Cryptogamia*, or flowerless plants. The ferns belong to one tribe of the Cryptogams called *Filices* because they are fruit bearers.

The leaf of the fern is more than a mere leaf, for it bears the fruit, therefore it is called the *frond*. (Lat. *frons*, a leafy branch) and the lower part of this frond, its stalk, is called the *stipe*. The little brown spots or bunches of fruit are called *sori* (singular *sorus*) and if you will look more carefully at one of them, you will find that it is composed of little hollow, roundish sacks called *sporangia*, and that each *sporangium* is on a pedicel. If you will look at this variety of fern, the Polypod, in the month of July, you will find that the sori are yellow and that the sporangia are filled with tiny seeds called *spores*. Each sporangium has a ring around it, as you can see in the specimens before you, and when the spores become ripe this band contracts, and breaking open the sporangium, scatters the spores, throwing them sometimes to quite a distance. But to return to the leaflets or *pinnae* as they are called in ferns, what kind of venation do you find.

P.—The *pinnae* are fork-veined, that is the veinulets are forked.

T.—And how are the sori arranged with reference to these veinulets.

P.—Each sorus is located on the underside of a *pinna* and at the end of a forked veinulet.

T.—Are the sori arranged in the same way on all the ferns before you?

P.—No! Some are in single rows near the mid-vein and some in double rows, and here are two that have none on them.

T.—The first of these that you think are without sori is the *Maiden-hair* fern, but the sori are marginal (i. e. on the

margins of the pinnae) and if you will turn the curled-up margin back you will see the sporangia. The second is known as the *sensitive* fern, and only a few of the fronds are fertile (*i. e.* bear fruit). When you look for this fern, which grows in low grounds, you will probably find one fertile frond in a bunch of sterile fronds, and it will be quite different from the rest. In other ferns you will not find sori on all the fronds, but where they are found, they frequently tinge the fronds with various colors and add much to their beauty.

In tropical countries ferns thrive much better than in our climate, and sometimes the stem rises to a height of forty feet, making the most beautiful trees of the tropical forests. One striking peculiarity of the fern is its method of germination. If the spores be planted they will not grow into plants like the original one from which they came, but must first pass through an intermediate stage. The spore develops into a green body resembling liverwort, called the *prothallus*, and this has on it certain organs which are analogous to the stamens and pistils of flowers. On these a second set of spores is generated, which finally develop into the fern.

Now let us recapitulate and tabulate our analysis of the most common of these ferns, the *polypod*. The name means many feet, referring to the many creeping underground stems.

PLANT.....	Perennial, fruit ripe in July.
ROOT.....	Many thread-like fibres which branch.
STEM.....	Subterranean, brown, branching and scaly.
FROND.....	Pinnately divided, eight to ten inches high.
<i>Stipe</i>	Green, smooth, no scales on it.
<i>Pinnæ</i>	Oblong, feather-veined, fork-veined.
FRUIT.....	On undersides of pinnae toward end of frond.
<i>Sori</i>	In bunches, uncovered, two rows, gold to brown.
<i>Sporangia</i>	Like flattened spheres with rings around, on stalks.
<i>Spores</i>	Yellow, dust-like.

THE first use of the locomotive in this country was in 1829.

THE PUBLIC SCHOOL TAX.

THE lowest view for the community to take is that the schools are a burden. Every dollar expended upon them is then so much taken from somebody or everybody, instead of so much added to the common resources. It is a strain upon, not a service to, the city which the schools represent, and the more they are held in, the more difficult their course is made, the better for all besides them. One would hardly imagine that they were established for our children, whose cause is theirs, and who suffer with the evil done them or the good withheld from them. They would seem to have been founded, not exactly in the interest of tax-payers, but with more respect for them than for anybody else. It is not they, however, who demand this particular consideration. They may not think that the schools need all the money voted them. Less costly houses, less pretentious branches of instruction, less exhibition and festival, possibly less numerous offices and less liberal salaries, may appear to be called for, particularly in seasons of financial depression. But for all reasonable purposes, as they would say, for all that really goes to make education genuine, the tax-payers, especially the large tax-payers, make no objection to generous estimates. The objection comes from men who contribute little or nothing to the municipal treasury, but who have a good deal of control over the contributions of others. They like appropriations for objects they understand better than public instruction, and from which they think they can profit more. Such as have children at school can appreciate the helpfulness as well as the burdensomeness of the schools. But very few even of this class give up shaking their heads at the educational budget of the year, and insisting that it ought to be reduced. The less of a burden it is to them, the more they seem to repeat the word and fancy it a reality.—SUPERINTENDENT ELIOT, *in the Boston School Report.*

THE LIMITS OF STATE EDUCATION.

The substance of Professor Newell's address to the State Teachers' Association, Thursday evening, August 28th.

WHAT are the limits of State Education? or, to put the question more plainly, to what extent is it right to take one man's money and apply it to the education of another man's child? I do not propose to inquire at all into the previous question: Is the State justified in giving any education at all at the public expense? Not because there is only one side to this question, for the negative is held by many thoughtless persons and by a few of the deepest thinkers of the day, Herbert Spencer among the rest, but because the previous question is practically settled for this generation at least. The public school has so interwoven itself into the frame work of our laws and into the social life of our people, that the abstract question of its right to exist, cannot now be made a live issue. The Constitution of Maryland guarantees to all her citizens "a thorough and efficient system of free public schools." Every State in the Union is placed, in theory at least, on the same platform. Every nation in Christendom is following in our footsteps, if it has not already taken the lead. In spite, therefore, of theoretical arguments on the other side, whose logical force I am not inclined to underrate, you will permit me to assume as our rule of action that some part of the people's money may be taken to educate the children of the people. The only practical question at present is, how far shall this education be carried? This question, "How far" may be viewed in different aspects. It may mean, how long may one person be allowed to enjoy this privilege of receiving education at the cost of the public. Our school law answers this question. It begins at the age of six and ceases at the age of twenty-one. But the question may mean, how broad shall that education be; and this question also has been definitely answered by our school law. It shall cover not only the three R's, but the elements of literature and science, grammar, and history, arithmetic and algebra, geography and natural philosophy. But the question may mean and is generally understood to mean, how high shall this educational building be raised. Shall it be a one-story house, or a two-story with attic, or a three-story with brown stone front? Shall it terminate with the primary school, the grammar school or the college? How high shall any particular wing of the building be carried? Shall mathematics, for example, be confined to arithmetic and algebra, or shall it be extended to Geometry, Trigonometry and the Calculus? Shall it be restricted to purely scientific teaching, or shall it include such practical applications of the science as Mensuration, Surveying, Mechanics, Engineering, Astronomy? These questions are hard to answer, and our school law does not attempt to answer them. It specifies certain subjects

which *must* be taught, and certain others which *may* be taught, but does not forbid any kind of learning except sectarian religion and partisan politics. Practically the questions are answered by the logic of events. In our public schools, education is carried as high as the scholars are able and willing to go and the teachers are able to carry them. And there is a growing feeling in this and many other communities that the current of events to which we have in a certain blind fashion committed ourselves, is carrying us too far in this direction, and that it is about time for us to let go an anchor to keep the ship from drifting. It is this phase of the question to which I ask your earnest attention. I propose to give it a calm and dispassionate investigation.

Before determining whether there is any danger of our educating the people too highly, we must present clearly to our minds the reasons why the State is justified in giving any education at all. There are some who look on the district schools as outlying wards of the County almshouse. In accordance with this view, we find the newspapers occasionally alluding to them as "eleemosynary institutions," *eleemosynary* being but *alms* "writ large." If there is any analogy between the almshouse and the school house, there may be an argument against higher education founded on that analogy. We do not think it right to feed the inmates of the almshouse on roast-beef and plum-pudding, soft crabs and terrapins. Men may have those luxuries who are able to pay for them; but those who are living on charity must be thankful if they get the bare necessities of life. In like manner, if the analogy holds good, the public school should not undertake to furnish Greek and Latin, Geometry and Drawing to its pupils. These mental luxuries must be confined to those who are able to pay for them from their private purse. Those who draw their rations from the public crib, as a matter of charity, must be content with those items on the bill of fare which experience has shown to be indispensable.

I have stated the argument in the strongest form; and I am willing, for the present, to admit the analogy. There is a certain resemblance between the two institutions. They both deal with food; the one, food for the body, the other food for the mind. They are both made necessary by certain imperfect conditions of society; (when the millennium comes we shall need neither almshouse nor district school); they are both supported by public money and superintended by public officers. So far, at least, the analogy holds good; let us see whether it is equally good at the point where the argument is drawn. We do not feed paupers on luxuries, but on the necessities of life. We restrict them both in quantity and quality to what is necessary to keep them alive and healthy. But *why* do we pursue this policy? Because we do not want to surround the almshouse with any unnecessary attractions. Our object is primarily to keep people *out* of the almshouse. If men cannot procure food enough outside of its walls to keep them alive, we offer them food and shelter

rather than see them suffer. But we do not wish to encourage the feeling of dependence; the almshouse may be necessary in our present social condition, but it is a necessary evil; it must not be made a pleasant place of resort; on the contrary, it is the duty of all good citizens to do all that in them lies, to keep their fellow-citizens *out* of the almshouse. For this purpose it is necessary to draw a sharp line of distinction between the bill of fare at the almshouse and that at a first-class hotel. Nothing but what is essential to life and health should be placed on it, so that people may not be attracted but rather deterred from entering its doors except under the pressure of hard necessity.

Those, therefore, who either from religious, social or economical reasons, are opposed to public education, who believe that the public school is a necessary evil which must be tolerated but should not be allowed to spread; who think that every man should educate his own children at his own expense, and that public schools are provided for those only who are too poor to do so; all such persons are logically consistent when they claim that the education furnished at the expense of the State shall be confined to what is absolutely indispensable; that it shall be limited in variety, restricted in quantity and economical in quality. In this way the public school house will be made unattractive, and those only will go there who are unable to get education elsewhere.

But if your theory is, as I hope it is, altogether different; if you believe that the public school in the present state of society is a necessary good, and not (like the almshouse) a necessary evil; if you believe it to be your duty to allure children into it, and not to deter them from it; then the same argument from analogy will convince you that the mental bill of fare, which constitutes its chief attraction, should be ample in variety, abundant in quantity and appetizing in quality. If the school house, while resembling the almshouse in many particulars, differs from it in this essential point, that the one should be made as attractive and the other as unattractive as possible, the methods which have been found successful in deterring people from the almshouse must be reversed if we would attract them to the school house. I have dwelt on this argument from analogy, because though we do not often hear it explicitly stated, it is often assumed and acted on by many who do not pause to analyze the processes of thought on which their convictions are founded.

But in truth there is more of contrast than resemblance between the two institutions. All political economists are agreed that the almshouse has a tendency to produce and increase pauperism; but pauperism is not a desirable product, and therefore the attractions of the almshouse must be limited to a scanty supply of the necessities of life. The public school has a tendency to produce and diffuse learning; those who hold that the public school should be restricted to the mere elements, must believe that

learning is not a desirable product, and that beyond a certain point we are better without it. They would reverse Pope's famous couplet:

"A little learning is a dangerous thing;
Drink deep or taste not."

And say:

"Too much learning is a dangerous thing;
Taste, but drink not deep."

"But common sense tells us there must be a limit somewhere to this growing demand for education at the public cost. It is neither reasonable nor practicable to educate the masses as you might wish the few to be educated who are to be the statesmen, lawyers, physicians and preachers of the day." Common sense tells the truth: there *is* a limit. Nature and the conditions of society have drawn the line, and have drawn it so low that there is no need of any artificial barrier.

You have all been delighted with Addison's description of the Hill of Science. The metaphor will help us to think out this question. There are broad, bright meadows at the foot of the hill; verdant slopes beyond; flowery terraces higher up; then dark, almost impenetrable forests; rocks, precipices, and glaciers above; and finally the snow-clad summits wreathed in mist through which the rays of the rising sun only occasionally break. On the broad meadows at the foot are crowds of gay and happy children disporting and pressing on with eager feet for the sunny slopes ahead, which few of them reach, one-half never getting beyond the meadows; of those who succeed not one-half reach the flowery terraces; most of the remainder are lost in the thick woods; the region of rock and glacier is reached by only one or two adventurous climbers, and the virgin snow of the summit is still untrodden by the foot of man. Why post up "No Thoroughfare," on any of the paths on such a hill as this? What need to build a fence across any of the roads? Give the climbers the very best facilities; make good roads where roads are possible; cut bridle-paths through the woods; give the travelers the trustiest guides, the strongest ropes, the stoutest alpenstocks! The lower slopes will still be crowded. The higher levels will be reached by few, and the solitary mountain peak will still be solitary.

To drop the figure: extend the facilities of education as much as you please, the number of well-educated people will still be lamentably small. To some Nature has given but little ability; of those who have the necessary capacity a large proportion are kept from prosecuting their studies long by the necessity of working in order to earn a living. It is only the small remnant, who have both brains and money who are in any danger of being over educated.

I have spoken of the public schools as agents for the production and diffusion of learning: but we cannot comprehend the scope of the great

question before us until we take a higher view of their aim and purpose. It is true that they increase knowledge, but that is only part and the less important part of the truth; the increase of learning is only one of the consequences, and not the main purpose of public education.

What is the proper end of public education? It is to make men good citizens. What is necessary in order that men may become good citizens? They must be able to make a right use of all their physical, moral, and mental powers. Lest I should be suspected of making a definition to suit my argument let me quote the words of George Combe, written nearly half a century ago: "The object of education ought to be to train by means of exercises the whole systems composing the human being to the best conditions for exercising their functions;—to develop the natural feelings and intellectual faculties into full vigor and activity; to direct them to their proper objects, to bring forth a healthy, vigorous and harmonious action which shall lead to health, prosperity, holiness and happiness. Such is the just and rational aim of education." Speaking before the people of the United States he said: "I desire to see in this country a moral and intellectual machinery put into vigorous operation calculated to *teach* the young the legitimate spheres in which all their faculties should act. I desire to see public opinion, which is here your great restraining power, composed not of the sum of the ruling prejudices, passions or interests of the day, but of the concentrated wisdom and virtue of millions of trained and enlightened minds. Such a public opinion I should regard as the best and safest of all governing powers. An ignorant public opinion is, to the wise and good, a revolting tyranny. You have established universal suffrage, placed supreme power in the hands of your majorities, and no human means short of military conquest can deprive the majority of its sway. You have, therefore, only one mode of action left to reach the goal of national happiness; enlighten your people, teach them whatever is necessary for them in order to guide their faculties aright, train them to self-control; train them in youth to bend all the inferior feelings under the yoke of morality, reason and religion. In short, educate them, and educate them well!"

In the light of such a definition of education, how absurd, how puerile is the question, How far may the State rightfully go in the education of her children? If she has the right to take a single step she is bound to go just as far as she can. The limit is not a limit of right, it is simply a limit of expediency, a mere question of money. If the State undertakes to do anything at all in the way of real education, where can she stop in her effort to form and direct that public opinion which is the very breath of her nostrils? If our schools can give that training of which I have spoken, what human power can draw a line and say to the incoming tide, "Hitherto shalt thou come and no further?" And if a line could be drawn, where would you place it? At the Primary School? The Intermediate

School? The Grammar School? The College? There is not a single argument in favor of public education in any grade that does not apply with greater force to education in the grade immediately above it. Whatever benefit the State reaps from the right training of a child of seven, the benefits are enormously increased when the subject is a young man of twenty. Indeed, I believe it would be hard to find a valid argument for schooling the very young at the public expense, except that such schooling is necessary to prepare them to receive higher instruction and more useful training. And so we find that our forefathers in England and Maryland commenced with the *Academy* and worked downward by slow degrees to the Primary School.

The State, for her own preservation, must have well informed and well behaved citizens. It does not follow, however, that the State must bear the expense of all higher education. It is only when other resources fail that she is called on to exert her sovereign power. Had the people as individuals furnished themselves with the proper machinery for primary instruction, the action of the State would have been superfluous, perhaps injurious. And where private philanthropy has built up great institutions of learning, as the Universities of Harvard and Yale, or at Princeton and Baltimore, there needs be no additional expense incurred by the State. But when private benevolence fails, the State for her own preservation must supply the want.

A time will come, as the centuries roll onward, when the infant school shall be unknown, when the Primary School shall be numbered among the relics of barbarism, when much that is now studied with tears at the Grammar School shall be learned with pleasure at the fireside from the lips of a fond mother in a happy home, but the time will never come when the training that comes from higher education will be less necessary than it is to-day. To feel rightly, to think justly, to act wisely in all the relations of life, will always have to be learned and taught. And always, to the end of time, and in ever increasing numbers as the world grows older and men grow wiser, will the young and the inexperienced gather for information, and guidance, and encouragement, and strength, and sympathy, in halls of learning, where the good and the wise, and the great,—the kings of the realms of literature and science shall hold their court.

If there is a man in this audience who thinks he differs with me, I believe the difference is more seeming than real. It is because while we are using the same words we are thinking about different things. When I speak of education I mean what I have already explained and defined, as that process of training which gives a man the full use of himself, his bodily powers, his mental abilities, his moral faculties. But my friend who "begs to differ" thinks merely of a certain amount of knowledge or information; a certain weight or measure of school-learning, so many pounds of reading, so many hundreds of spelling, so many tons of arith-

metic, so many gallons of chemistry, so many acres of Greek and Latin literature. He says some of these things are necessary, and the State should furnish them in small quantities; others are not necessary, and whoever wants them may buy them, and as much of them as he is able to pay for. If this were education, I would be willing to draw the line of limitation very low indeed. But this is not education. Education includes training as well as instruction, and the value of the instruction lies principally in the training which accompanies it or results from it. Education means the training of the young for the duties of good citizenship, and no theoretical limit can be assigned to such education.

But my friend may reply: "This is not the kind of education that is given in our schools and colleges," and I answer: There is no other kind worth having if we could get it for nothing. If we are not getting, or are not in the way of getting such education, our public schools have no real value, and the line may be drawn as low down as you please.

Finally, my friend may say, "Where is the money to come from, with which to educate after this fashion? We are bowed down to the ground with taxes now, and you would make the burden heavier."

No, my friend, I would not. Education costs something at the outset; but in the long run intelligence is cheaper than ignorance; virtue is more economical than vice. Yet this is the very line of which we have been so long in search. We can have only so much education as we are able to pay for. We dare not say that State education must stop at the Primary School, nor at the Grammar School, nor at the High School, but it must stop at the point beyond which we are unable to pay for it. Valuable, essential as it is, it holds only a third mortgage on the property of the State. First, men must have food and clothing; secondly, they must pay their honest debts; thirdly, they must educate their children. Not till the first and second claims are satisfied can the third be honored. Then let the generous heart, and the liberal hand, and the wise head unite their efforts to train up all the young of the State for all the duties of good citizenship. Let there be a wise economy in all our expenditures; but let us remember that in education, even more than in other things, "there is that scattereth and yet increaseth; and there is that withholdeth more than is meet, but it tendeth to poverty."

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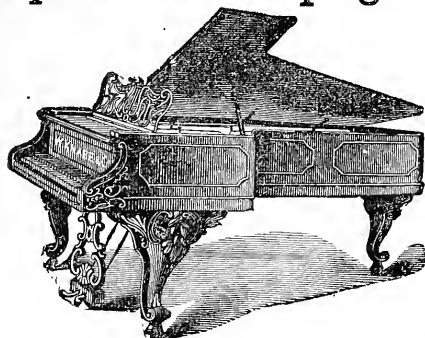
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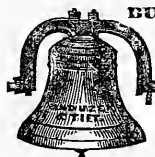
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beginning, that he had first of all to get command of his acquiring faculties, his progress is marvelous.

But now this rapidly learning boy begins to go to school. He is brought face to face with the alphabet, with the printed words of the language which he has made his own so quickly, with the figures which stand for the numbers he has constantly used, with the combinations they are capable of, with the facts of geography, the formal laws of language in grammar. He deals with these matters for twice five years, is in school ten years. At the close of that period, take an inventory of his acquirements *in school*. How small these gains! how quickly measured! How little, after so many years spent in study of them, he knows of letters, words, figures, and their uses and applications, of geography and formal grammar! His stores of knowledge gained in school in ten years, with the advantage of faculties already developed, are far behind those of the first five years.

It seems as if a blight had fallen upon his brightness from his first days in school; as if sluggishness and dullness had crept in among the powers before so active and disabled them; as if he was blindly groping after the facts he before found so abundant in his path; as if the faculties which so readily laid hold of knowledge before were unnerved and relaxed, and had no gripe in them.

It is certain, that the majority of scholars go out from school with very slender stores of knowledge; that they do not read very well; that they know little of numbers; that they have not added much to their stock of language, nor to their ability to use it intelligently and effectively; that they have accomplished very little.

These facts are manifest enough. The question which especially concerns those who have in charge the education of children (parents and teachers) is the reason of the change in the ability to learn when the child enters school. The important question is, Is this all that children are capable of learning in ten or twelve years at school? There are but two positions

which we can take in this matter. One is, to conclude that children generally are capable of no more than this, the other is doubt of the methods used in instructing children when they begin to go to school.

I think we may safely assume that children are capable of accomplishing much more than they ordinarily do in their school lives. The fault, undoubtedly, rests with the methods employed.

The child learns rapidly and much in the first years of his life, because he learns naturally. His faculties are yet in their native freedom ; no bonds are put upon them. If we scrutinize his native methods of learning, we shall find that he learns by seeing, hearing, touching, handling, tasting, *objects*. He learns by destroying things. The destructiveness of children is by no means vicious, naturally, but this pulling things to pieces is his natural way of learning about things. To give his apparent destructiveness its philosophical name, it is a rough analysis. He takes things to pieces to see how they are made. And then he is quite as likely to make attempts to put things together, to build up what he has pulled down ; and that is the first efforts of the highly important principle of synthesis. The child does not reason much ; he hears, sees, touches, tastes and remembers. The contents of his knowledge are mainly sensible things. As he passes along amid the multitude of things that may constitute knowledge, his faculties lay hold of those things to which they are adapted.

But when he begins to go to school this natural method is abandoned. He is at once taken from his natural way of learning and put upon a strange artificial way. He has hitherto studied the world around him, which invited his faculties to a free and vigorous exercise. He begins to study books, which are trying to his freely roving eyes. He has hitherto studied objects inviting in color, shape, fragrance and sound ; he now begins to study symbols, and the abstractions imbedded and concealed in them. He has before gained his knowledge as he walked or ran or climbed or crept, but now

he learns sitting still, in constrained positions, in bad air. Before, his quick ear caught his language fresh and alive upon the lips of his parents, friends and companions, in work or play or interchange of affection. Now he gropes blindly and vainly after it among strange symbols and unmeaning rules.

His learning is now under a total change of circumstances. He is taken out of the order of nature, and put into an artificial order. When a plant is wrested from the place in which it has grown, and planted somewhere else, it will lose for awhile its brightness; its growth will stop till it has had time with the torn fibres of its roots to adapt itself to its new circumstances and gather strength. So, when a child is taken from its free life, where it was learning rapidly, and put under the restraints of the methods ordinarily found in our school-rooms, it is no wonder that his brightness fades, that he is stricken with blight and stunted. The methods under which he is put are so artificial, so little adapted to his nature, it is no wonder that he is slow and dull, and accomplishes little; that the months and years speed away and he has little to show for the time spent. A colt that has had the freedom of the yards and pastures, and in that freedom developed strength and grace of motion, is suddenly caught and harnessed, and put to drawing loads. He usually and properly, refuses to work in that way. He rears and plunges and kicks, or sullenly plants his feet and refuses to move. He does not understand this constraint put upon him; he does not understand the iron bit into his mouth, nor this strap, nor that buckle. He rebels. A hard struggle and time are required before he will become useful and graceful.

When a child begins to go to school, the methods by which he has so readily learned so much should be continued as far as possible. The smallest restraints possible, in exchange for his freedom should be put upon him. He should be taught chiefly by his senses,—by seeing, hearing, touching, and handling. No abstractions should be presented to him. It will be necessary to introduce him to that very artificial, yet supremely

important, way of gaining knowledge, the printed page, but it should be done very gradually and gently. Let his first reading and studying be about objects ; and as far as possible let the objects accompany the artificial page, that he may come easily to the important fact, that words and sentences, as he sees them on the page, and does not hear them on the air, mean something, and may learn what they mean.

Taking him thus gradually and carefully from his natural method of acquiring knowledge into that very artificial way of getting ideas from printed words which is supremely necessary to him if he is ever to be a thorough scholar, he is likely to escape that period of blight and stunting which is so likely to come upon children when they begin to go to school, and which renders so many of the first school years unprofitable.

Teachers do not understand the fact that it is very difficult to the child to pass from the words of a sentence to the thought hidden there. Show him a knife and he knows it, and all about it and its uses. Show him the printed or written word which means knife, and it is naturally a puzzle to him. He sees no blades or handle ; he cannot cut anything with it. It is a great effort for him to see things in words, an effort for him so great that he needs all the help which the best skill can give him. One of the most scholarly men New Hampshire ever produced declared that he was twelve years of age when the printed words first gave him any meaning. He read the sentence, " Words of three syllables accented on the second syllable." All at once it came into his mind, like a flash, that that meant a " thump " of the voice on the second syllable. It is to be feared that many of our children are more than twelve years of age before they begin to take knowledge from books.

It is impossible to escape the conclusion that the slow progress of children in knowledge is due to unskilled teaching. The youngest scholars require the best teaching, the most care and prudence. In the transit from the natural way of acquiring knowledge to the artificial way of the schools, when

the scholar is deprived of the freedom he has enjoyed and brought under irksome restraints, when his powers are to be given an altogether new direction, experience, skill and patience should be present. If the teaching then is not skillful, if it is not adapted to the child's nature, the condition of his faculties, to all his circumstances, it will take years to overcome the mischief then done. He needs better teaching at the beginning than afterwards. If he starts right, he will take care of himself afterwards. If poor teachers are to have charge of him at any period of his life, it had better be in the high school than in the primary and grammar schools.

Common practice does not meet this requirement. Young teachers, unskilled teachers, are placed over these young scholars. A teacher who would be thought unfit for a high school, or even some grades of the grammar school, is considered good enough to give the children the start in the path of knowledge, when the kind of teaching is of more importance than it will ever be again. It is far easier to find a good teacher for a high school, even a college professor, than a truly skillful primary teacher. The qualities demanded for this post are rarer than for any other in the whole field of teaching. The needed skill is more difficult to find. This is so, because it has been thought that such teaching did not require any special skill. But in no school work is so much careful study of the child's nature needed, in no period of his training ought there to be so much careful consideration of "ways and means," such wise adaptation of methods, as in the first school years.

It seems as if all parties had conspired against the intellectual welfare of primary scholars. Employers, because they think slender qualifications sufficient for teachers of this grade. Teachers help the conspiracy because they esteem themselves as low in their profession while they are primary teachers. Their ambition is to be promoted (?) to higher grades. Communities are aiding and abetting the conspiracy, because they give more honor to the high-school teacher, to the college professor, than to the primary teacher. Is there not reason to

review our system of educational rewards and honors, so as to place the primary teacher where justice demands, at least upon an equality with the others?

In all the discussions upon high schools, the importance of primary instruction seems to be overlooked. To what use are the opportunities for higher studies provided, if the majority of scholars are so long delayed in the necessary preliminary studies that the period set apart for their education is exhausted before they reach them? It is certain, that the great majority of scholars who enter the primary departments do not reach the high-school studies, by which they might be greatly benefited; they are yet in the grammar-school grades when they must leave school for the business of life. This slowness of progress ought not to be charged to want of ability on the part of the children, but to the true cause,—defective primary teaching. If those who have charge of them in their first years were more skillful, used methods more suited to the child's nature, they would make more rapid progress, and a greater proportion of them would be able to take advantage of higher studies, even in the limited period for acquiring their education. If, then, we would make high schools successful, and extend their undoubted advantages to a larger portion of the scholars of the State, more attention must be paid to the primary teaching.

If greater skill in teaching would advance scholars more rapidly in their first years at school, without injury to their physical or mental health, then provision should be made for this more skillful teaching.—SUPERINTENDENT DOWNS, in the *New Hampshire School Report*.

IF, amidst all your studies, you do not learn to converse or commune with your own selves, whatever you know, or rather whatever you imagine you know, I would not purchase it at the expense of a straw.—*Archbishop Leighton*.

WHAT "OLD TIMES" MEANT.

A half century ago a large part of the people of the United States lived in houses unpainted, unplastered and utterly devoid of adornment. A well fed fire in the yawning chasm of a huge chimney gave partial warmth to a single room, and it was a common remark that the inmates were roasting one side while freezing the other; in contrast, a majority of the people of the older States now live in houses that are clap-boarded, painted, blinded and comfortably warmed. Then, the household furniture consisted of a few plain chairs, and a plain table, a bedstead made by the village carpenter. Carpets there were none. To-day, few are the houses, in city or country, that do not contain a carpet of some sort, while the average laborer by a week's work may earn enough to enable him to repose at night upon a spring bed.

Fifty years ago the kitchen "dressers" were set forth with a shining row of pewter plates. The farmer ate with a buck-handled knife and an iron or pewter spoon, but the advancing civilization has sent the plate and spoons to the melting pot, while knives and forks have given place to nickle or silver-plated cutlery.

In those days the utensils for cooking were a dinner-pot, tea-kettle, skillet, Dutch oven and frying-pan; to-day, there is no end of kitchen furniture.

The people of 1830 sat in the evening in the glowing light of a pitch-knot fire, or read their weekly newspapers by the flickering light of a "tallow dip;" now, in city and village, their apartments are bright with the flame of the gas-jet or the softer radiance of kerosene. Then if the fire went out upon the hearth it was re-kindled by a coal from a neighboring hearth, or by flint, steel and tinder. Those who indulged in pipes and cigars, could light them only by some hearth-stone; to-day we light fire and pipes by the dormant fireworks in the match safe, at a cost of one-hundredth of a cent.

In those days we guessed the hour of noon, or ascertained it

by the creeping of the sunlight up to the "noon-mark" drawn upon the floor; only the well-to-do could afford a clock. To-day who does not carry a watch? And as for clocks, you may purchased them at wholesale, by the cart-load, at sixty-two cents apiece.

Fifty years ago, how many dwellings were adorned with pictures? How many are there now that do not display a print, engraving, chromo or lithograph? How many pianos or parlor organs were there then? Reed organs were not invented till 1840, and now, they are in every village.

Some who may read this article will remember that in 1830 the Bible, the almanac and the few text-books used in school, were almost the only volumes of the household. The dictionary was a volume four inches square and an inch and-a-half in thickness. In some of the country villages a few public-spirited men had gathered libraries containing from three to five hundred volumes; in contrast, the public libraries of the present, containing more than ten thousand volumes, have an aggregate of 10,950,000 volumes, not including the Sunday-school and private libraries of the country. It is estimated that altogether the number of volumes accessible to the public is not less than 20,000,000! Of Webster's and Worcester's dictionaries, it may be said that enough have been published to supply one to every one hundred inhabitants of the United States.—*Atlantic Monthly*

MR. W. E. FORSTER said in an after-dinner speech the other evening, that before the school census of England was taken there was no idea of the enormous multitude of children who were untaught. Before the School Boards came into operation teachers were disgracefully ill-paid. At present, it is a ridiculously small proportion of children who learn the higher branches.

COOKERY IN LONDON SCHOOLS.

The London School Board have initiated a system of education in cookery. In the first place, it was found necessary that only qualified teachers should be provided, and accordingly, early in the year 1877, the board adopted as an article in the code of regulations a rule to the effect that "one or more of the mistresses in every girl school must be competent to teach cookery," and all head and assistant mistresses of girls' schools who were not already competent to teach cookery were strongly urged to attend a course of lessons on that subject. These lessons have been given at four cookery centres, situated respectively in the divisions of Greenwich, Marylebone, Hackney, and Lambeth, being thus available to teachers in all parts of London. The instruction is both theoretical and practical, and the teachers are not admitted to an examination in the practical department until they have passed a satisfactory examination in theoretical cookery. Certificates have been granted to those mistresses who have successfully passed both classes of examination. The subjects of examination, both theoretical and practical, are confined within the limits in which it is required that instruction shall be given to scholars. This cannot be better illustrated than by quoting some of the questions required to be answered by the teachers before passing their examination in theoretical cookery. These questions illustrate in a simple and forcible manner the character of the instruction in cookery which is afterwards given by the teachers to the advanced girls in the board schools of London.

"Name and explain briefly the six commonest ways of cooking meat. Give a full recipe for preparing a piece of meat in any one of the ways you mention." "Name six of the most valuable fresh vegetables used in this country. Give recipes for boiling old potatoes, for boiling cauliflower and serving it with melted butter." "What are the general rules to be observed in roasting meat? How long would it take to

roast seven pounds of beef, and how would you set about it?" "How would you make a leg of beef soup?" "What are the different methods of preparing beef tea?" "Give two of recipes." "How would you make a quart of flour into bread?" "Give the recipe for a meat-pie." "What is the difference between the flesh of white and oily fish? How would you stuff and bake a haddock?" "What is *pot au-feu*?" How would you prepare it with six pounds of beef? What beef would you use and what other ingredients?" "Mention some ways of re-cooking old meat. What dishes can you prepare with Australian meat? Give the recipe for one." "Give the rules for boiling meat and the time allowed." "How would you prepare an Irish-stew?" "How would you prepare a dish of beef *a la mode*?" "What utensils are necessary for a small kitchen?"

We have quoted at considerable length from the questions put at cookery examinations in order that an accurate idea may be obtained of the character of the instruction given. The matter speaks for itself, and we think there are very few people who will be prepared seriously to argue that instruction of this kind ought not to be given to girls in boarding schools. The scheme of teaching adopted by the board is to give to the older girls, in certain schools, at least twelve lessons on "Food and its Preparation" and twelve lessons in practical cookery. The practical lessons are given to girls upon one half-day in each week. They are given by an instructor appointed by the board, who is paid a salary of \$60 per annum. The board have resolved to provide kitchens at twenty-one schools throughout London, selected in districts the most convenient for the attendance for the scholars. Of these, five are now in actual operation. These kitchens are fitted up with such appliances as are suitable for an ordinary artizan's home. A simple cooking apparatus is provided for such schools in outlying districts as are too far removed from the kitchen. The food cooked is generally sold, and therefore no loss accrues from waste. The teaching is at present in its infancy, and only

available to a small portion of the girls of London, but the scheme is being gradually developed and will ultimately place this class of instruction within the reach of the best girls in our schools.—*London Echo*.

FIRST LESSONS IN WRITTEN LANGUAGE.

It is the purpose of this article to show that the child may learn the written language at once, as the instantaneous expression of thought,—just as he learned the spoken,—and at the same time may acquire a correct orthography and a ready pronunciation; in other words, he may make its significance the supreme object of attention, while he works out all subordinate processes without bringing them into an unnatural prominence, as in the ordinary methods.

The plan presupposes that we begin with any of the one thousand words, more or less, with which the child is familiar. Taking these as known only to the ear, the tongue, and the mind, it claims every advantage which this knowledge affords while making them further known to the eye and the hand. It teaches the child to *read* and *write* any of these words, by treating them at first not as letter-groups, intentionally made to represent sounds, but as thought-messengers, sent forth to represent and awaken ideas. Letter-groups they are, and they do represent sounds, but these are subordinate functions, to be held for future development. It is thus that we can at once teach the child to deal with words in their true and most exalted capacity, so as ever after to treat them in that capacity in every act of reading and writing. This is an immense gain; just as it is for the teacher to be recognized as *teacher*, a sort of sovereign guide, a superior personage, and not as one in the ordinary walks of life.

By this method the child must both *recognize* and *make* the words as signs of thought; for, if he merely *recognize* (read)

them, they are only messengers *to* him, without any adequate means of making them messengers *from* him, and of thereby involving tacitly and unobtrusively their orthography and phonic representations. But by making them with his own hand, and with no other conscious aim than to produce the signs of thought, he employs the hand as he does the tongue,—to minister unwittingly to the wants of the mind. To illustrate: if the child makes the form *top* to stand for the toy which pleases so much, he *involves* or *works in* three letters, and represents three elementary sounds; but his mind is not dwelling on these (unless we unfortunately draw off his attention to them), any more than it is on the three elementary sounds of the word when he speaks it. In this way both the mind and hand are gaining experience together, each in its own way,—the one consciously, the other unconsciously; and our unconscious experiences, if properly guided, are our very best. It is in this way that the child *acquires the orthography of every word he learns*.

How shall he acquire their pronunciation? Not, at first, by any conscious combination of letters or letter-sounds. There is *spelling*, phonic or alphabetic, as that process is commonly understood; but there is a true orthographic representation of every word,—a representation so thoroughly imprinted upon the memory that the slightest error is as readily detected by the eye as any false pronunciation is by the ear. But how can the mere sight of a whole word enable the child to pronounce it? Simply by its association with the *idea*. It is this *idea* that prompts him to utter the spoken word, and that forcibly and truly; now the written word serves to awaken the idea; the eye takes in the sign, the mind the idea, and the voice instantly pronounces the word. As the eye glances along the line, the mind *thinks* the ideas, and thus the child reads *silently*; if, at the same time, the voice utters the words, he reads *audibly*. He expresses thoughts now, because he has thoughts,—because he has not been deprived of them by any spelling-process. He could before pronounce any

word which was known to the ear, the mind, the tongue ; but now he can pronounce them when known also to the eye and the hand, and may continue so to do, if the teacher judge best, without working out subordinate processes, till he has gone through *with the pronunciation of his one thousand known words*.

But this is not best. It is far better to intersperse with this work *disciplinary* processes, which in the teacher's mind have a two-fold end,—the one to mold the unconscious habits above named, and the other gradually to “work out” into full consciousness the latent elements and processes which every moment has been “working in.” This may begin early, if the teacher judge it best, but it must *never* conflict with the fundamental idea that *reading* is receiving, or receiving and uttering thought, and that *writing* is embodying thoughts. Thus, the child writes and reads, “See my top spin.” The teacher commends the reading and the writing as having accomplished their highest end, but says it would look better if the *n* in *spin* (calling the letter by name, *en*, just as if the child already knew it), were not made to rise above the other letters. She thus corrects the writing, and insists upon the change, yet as a subordinate matter. The child already knows the letter *somewhat*,—he has made it again and again ; but now he knows it explicitly by *name*,—one letter is “worked out.” In like manner all will soon be evolved without loss to the grand predominant end. So, again, she writes *top*, of course to express some thought about it, but incidentally, as she proceeds, she utters aloud (as if impelled by some inward guidance), first the sound of *t*, then writes the letter itself ; next the sound of *o*, then the letter ; and so of *p*. She then requires the pupil to do the same, but always as a side matter not as an exercise essential to *reading* or *writing*,—that has a more exalted meaning. In this way, without lowering at all the child's conception of *reading* or *writing*, she will readily “work out” into full apprehension the sounds of the letters, and at the same time hold the work in due subordination. She may begin this as soon as she finds it best. If she will make

that work incidental and wholly subordinate to the higher and all-absorbing process of *expressing thought* by reading and writing, her plan will be perfect. But to do this the children must *write* while learning to read—write as the best means of learning to read.

In this way, long before the child has exhausted his one thousand familiar words, he will be better able to infer the pronunciation from the letter-groups and letter-sounds than if he had begun with these directly. He will be better prepared to enter upon the mastery of the remaining ninety-nine thousand words than an equally bright child who has spent as much time with the analytic method, either phonic or alphabetic. With the incidental training above named, he is better prepared than the other to pronounce a new word when looked at as a mere group of letters, for he has noticed these in their relation as parts of a *whole*, and not as parts broken from the whole. He sees the branches, twigs, bark, etc., *in* the tree, and not as broken away, scattered about, then picked up and put together. Neither he nor the other can be *sure* of the correct pronunciation of a new word by inspection alone, or by any process of spelling alone. We all depend upon *hearing* a new word pronounced, before inspection or spelling can be made surely available.

But when we look at the problem of learning the written language in all its bearings, there is no comparison between the two methods. The child who attaches *thought* to written words looks at a new word as the sign of some new idea, not as something to be pronounced merely. What does it mean, is uppermost. Every reading-lesson is to him an exercise in thinking. Hence, in connection with the reading-lesson, the teacher will find the explanation of the pictures which usually accompany the lessons a very valuable exercise. If the reading-book does not furnish material enough, other illustrated books, or engravings, chromos, or any pictures which will interest the class, may be used. Let the pictures become a study to the class. Their explanation must not be a random

one, such as children are apt to make, but should be systematic, beginning with the central object or idea contained in the picture and gradually branching out to the minor points. Such an exercise should form a part of every reading-lesson, and may also be made useful as a simple lesson in written composition. The ingenuity of the teacher will suggest methods of awakening the interest of the class in this direction.

One method is to give catch-words separated by blanks. The imagination supplies the "missing links," and the child writes a little story, containing the given words woven into this narrative.

*Charles — river — toy boat — high wind — —
lost — weeds in the middle — wade — not deep —
sink — — help ! — Rover — bark — jumped —
— swam — — shore — saved.*

Another plan is to suggest a theory for the explanation of the picture by asking questions which will draw out the idea of the child. This method gives more room for the play of the imagination.

*Here is a boy looking into a well. Has he dropped his hat?
Is he looking for a fish? Does he see the sun, or his own face
in the water? Is the bucket lost?*

The child may select either solution of the question, and should develop his story methodically, as he did in the oral explanation.—*Prof. S. S. Greene, in Primary Teacher.*

SOME teachers, by nature, are better fitted to manage the young, to impart instruction, to apply proper stimulus to the mind, than others are. They have a peculiar adaptedness for this particular calling, a facility in the use of language, a power of illustration, an intelligent enthusiasm, an earnestness of manner, which cannot fail to inspire interest in the minds of their pupils, and make them eminently successful as teachers.

FIRST LESSONS IN BOTANY.

XII.—THE PEA AND BEAN FAMILY.

Teacher.—Some time ago we studied the bean and traced its development into the plant but did not consider the structure of the flower. Other flowers, which did not bloom so late in the season, claimed our attention first, but now that we have a member of the same family before us let us examine it, and be prepared in the Spring for others, such as the Judas tree, Wistaria, Peas, Beans, Locust, Peanuts and Clover. The common name of this plant is the *Purple Bean*, but on account of the great length to which it grows in one season and the numerous flowers in a bunch it is called *Dolichos multiflorus*. Let us examine it regularly, beginning with the leaves. How are they arranged on the stem?

Pupil.—They are alternate.

P.—I think that two of them are opposite and one is alone at the end of this branch of the stem.

T.—But the branch of a stem always starts from the axil of a leaf. Is there a leaf where this starts from the stem?

P.—There are two little scale-like projections which might be called leaves.

T.—But these scale-like leaves are in pairs, and you might suspect, from this circumstance alone, that they were *stipules*, but we have other evidence. What you called a branch is *channeled* on the upper side, and this is a characteristic of petioles; and again this ends in a single leaf, whereas if it was a branch it would end either in a bud or a flower but never in a leaf. These are therefore *compound leaves*, each being composed of three leaflets. The upper leaflet has quite a long petiole of its own, while the lower ones are almost sessile on the main petiole. The *compound leaves* are alternate on the stem. Do you see any other stipules?

P.—There is a pair at the base of the two lower leaflets and a pair at the base of the odd leaflet.

T.—These latter being at the bases of the leaflets are called *bracteoles*. Describe the venation of the leaflets.

P.—The veins are all purple, and because there are three large ones which start from the petiole, it is palmately veined.

T.—What shape are the leaflets?

P.—They are roundish, flattened at the base but tapering to a fine point at the apex.

T.—Then we will call them *round-ovate acuminate*, the former because they are between the round and the ovate, and the latter because they are drawn out into a point at the apex. Now look at the peduncle; is it channeled like the petiole?

P.—No! it is cylindrical.

T.—How many flowers are there on it, and how are they arranged?

P.—There are a great many flowers and buds, I can count thirty and they are arranged around the peduncle, attached at different points.

T.—This arrangement of the flowers around the central peduncle (or *rachis*) is called a raceme. Mention some flowers that grow in racemes.

P.—The Locust blossom, Wistaria and Lily of the Valley grow in this way.

T.—Let us look at the flower. How many sepals has it?

P.—There are two free outside sepals and four joined together.

T.—These two outside parts are bracts: remove them and you will see that the calyx has one sepal larger than the rest. This is composed of two sepals united almost to the top, but look with your microscopes and you will see that there is a small notch there marking the line of division. So we may count five sepals in all. If you will hold the flower up and look at it sideways, you will probably see why botanists think it resembles a butterfly, and therefore call it a *papilionaceous* flower. The parts of the corolla differ so much in shape that they have to be described separately, and therefore have received separate names. This larger petal is called the

banner. Next you will see two petals very much alike: one on each side; these are called *wings*. Under the wings there is a crooked part, which, like the large sepal, is composed of two petals joined together; they form what is called the *keel*. What then are the parts of the corolla of a papilionaceous flower?

P.—The banner, two wings and the keel.

T.—The banner, which is the upper petal, covers the others when the flower is in bud, so that the keel is on the lower side of the flower; on which side then is the double sepal?

P.—It is on the same side as the banner, and must therefore be on the upper side.

T.—Open the keel, by carefully splitting it up between the petals. How many stamens are there?

P.—There are nine stamens all joined together by their filaments.

T.—But don't you see another stamen?

P.—Yes! here is one separate from the rest. It is attached to the queer shaped claw of the banner.

T.—The stamens are arranged in two sets or brotherhoods, as they are called, and for this reason are said to be *diadelphous*. The stamens are nearly always united by their filaments, sometimes forming two brotherhoods and sometimes only one, (in which case they are called *monadelphous*.) Notice that they all bend over with, and are enclosed by, the keel—and that their filaments in turn surround the pistil. Describe the pistil.

P.—The ovary looks like a little bean. The style bends over forming a right angle, and is bearded on the under side near the stigma.

T.—Here are some of the ovaries more fully developed, and, you see, they are real bean-pods with the styles still attached. Botanists call these *legumes*, and because all the members of this family bear fruit of this form the family is called *Leguminosæ*. Open the legume on the straighter edge and tell what you see.

P.—There are four ovules attached to the margins, and they are separated from each other by ridges.

T.—These ovules are green because they are not quite ripe, but when they ripen they will be of a dark purple color with a white stripe along one edge. You can see the stripe now. The stem of this vine, like that of the morning glory, climbs by winding itself around objects, and always winds in the same direction.

ANALYSIS.

PLANT—A vine, annual, blooms from June till frost.

ROOT—Fibrous, extending quite deep into the ground.

STEM—Younger parts twining ; purple.

Stipules—Three pairs: One at base of main petiole, one at base of opposite leaflets, and one on odd leaflet.

Petiole—Cylindrical with groove on upper side.

LEAVES—Compound, alternate, three leaflets, two sessile and one petiolate, palmately veined, round-ovate, acuminate.

Peduncle—Cylindrical, grooved, hispid.

FLOWERS—In crowded racemes, papilionaceous.

Bracts—Two, on opposite sides of calyx.

Calyx—Gamosepalous, five—divided.

Sepals—Five, two united more than others to form a large sepal on upperside.

Corolla—Irregular, consisting of banner, wings and keel ; light purple.

Petals—Five, one banner, two wings and the keel or double petal. Banner uppermost with two projections on claw.

STAMENS—Diadelphous, nine in one set and one in the other, surrounded by the keel.

Anthers—Versatile, two-celled.

Filaments—Nine united part way up and forming a sack around the pistil, one free and bending more than the others.

PISTIL—One, surrounded by stamens and keel.

Stigma—Two-lobed, sticky.

Style—Bent at right angles, white hairs on under side near stigma, persistent.

Ovary—A legume with four to five ovules.

CLASSIFICATION—*Order*—Leguminosæ.

Genus—*Dolichos*.

Species—*Multiflorus*.

Common Name—Purple Bean.

PRONUNCIATION.

A copy of Webster's Unabridged Dictionary was offered at a Teachers' Institute in Pennsylvania to any teacher who would read the following paragraph and pronounce every word correctly according to Webster. No one succeeded in earning the Dictionary, although nine teachers made the attempt.

"A sacrilegious son of Belial, who suffered from bronchitis, having exhausted his finances, in order to make good the deficit, resolved to ally himself to a comely, lenient and docile young lady of the Malay or Caucasian race. He accordingly purchased a calliope and a coral necklace of a chameleon hue, and securing a suite of rooms at a principal hotel, he engaged the head waiter as his coadjutor. He then dispatched a letter of the most unexceptional caligraphy extant, inviting the young lady to a matinee. She revolted at the idea, refused to consider herself sacrificable to his desires, and sent a polite note of refusal, on receiving which he procured a carbine and bowie knife, said that he would not now forge fetters hymeneal with the queen, went to an isolated spot, severed his jugular vein and discharged the contents of his carbine into his abdomen. The debris was removed by the coroner."

WHAT IS A KINDERGARTEN ?

Properly, a kindergarten is a school intended for children under six or seven years of age. Instruction is imparted orally and by exercises and object lessons. A large part of the work seems to a casual observer as play and nothing more. The attention of the little ones (too young to be set face to face with the printed page, as in ordinary public primary schools) can only be earnestly engaged by something which amuses them and keeps them in motion. This is a period of life when health and development of mind and body absolutely require motion—a time when it is a sin for children to keep quiet; when the parent or teacher who compels them to be still for more than a very few moments at a time is the chief of sinners, a rebel against nature, a torturer and deformer of innocents. The slightest knowledge of anatomy and physiology teaches that at this early age inaction arrests the growth of bone, muscle, nerve and tissue. The willow-like bones are warped, and the action of brain, heart and stomach are enfeebled by either long standing or sitting. Now the child needs play. But the kindergarten says: let him play to some purpose. Even play may be better directed by science than left to chance or unaided infantile discovery. The child's body and mind can be developed by systematic, well directed play in the garden and in the house; and this is what the kindergarten aims to give him. Parents have not the time, implements and skill for this kind of training. The kindergarten is furnished with splints, straws, blocks, patterns, letters, geometrical diagrams, pictures, plants, fruits and scores of objects to be used as object lessons. With these the teacher proceeds in conformity with the carefully studied laws of mind, to cultivate attention, memory and thought, and call out and exercise the mental powers of the little observers. Then the fingers are set to work. The child plays with straws, splints, cards, ribbons and blocks—not wholly undirected, as most children play at home, but under the lead of a mind which

trains him to construct objects of beauty and utility. The child is taught to think, and his hand learns to obey thought. Surely all this is an admirable preparation for entrance upon that sober life of our common schools, in which most children start without any systematic training whatever.

This is the theory of the kindergarten ; and it is admirable : a child of reason, with philosophy and humanity for god-father and god-mother. Unfortunately, not one in twenty of the kindergartens "so-called" in this country are conducted by persons who have anything like a just conception of the genuine kindergarten theory, or anything like suitable preparation for their work.—*New York State Journal*.

MARQUIS DE LAFAYETTE.

We had the pleasure of seeing, recently, at the State Normal School, an autograph letter from Lafayette to Captain David Hardie. The following is a verbatim copy:

LHEMKUHL, December the 30th, 1797.

SIR: I Understand you are lately Arrived from Philadelphia, and while I Have the Honour to congratulate you on your safe voyage, I Beg leave to introduce a few questions for which my devoted attachment to the United States, and warm Affection for my American friends will, I Hope, Be to you a sufficient Apology.

Is it true that the Yellow Fever Rages no more? Do you know of any persons whom you think I Have Been intimately acquainted with that Have Been victims to this dreadful distemper?

What are your latest accounts about our Respected General Washington and His family, one of whom is my son George?—perhaps Have you chanced to Hear some thing of His intention to come to us as soon as He could know that we Had Been set at liberty—I did myself write to Mount Vernon about the 10th of October But do not expect my letters Had Reached them Before your departure.

How do the president, vice president, and other Members of Government particularly my late aid de Camp James M'Henry Now Secretary at War?—Should there Be others of my particular friends who Have the pleasure to Be personally acquainted with you, I will Heartily thank you for every information in your power.

What was on that side of the Atlantic the situation of the Misunderstanding Between the United States and the French Commonwealth? A circumstance which Has damped the enjoyment I could find in my Restoration to liberty and life, and Cannot fail to make me very Un-Happy Until it Has Been Settled with equal advantage and equal dignity to Both.

Begging pardon for this inquisitive letter, I Have the Honour to be very Sincerely sir

Your obedient servant

LA FAYETTE.

Have you seen G'al Kiosiusko? How was His Health?

Captain David Hardy, etc.

APHORISMS FROM RICHTER.

"God and immortality are the two pillars that carry the universe."

"The great mass of men are of a planetary nature, living on the light and warmth borrowed from others,—Luther and Shakspeare were of a solar nature."

"A man of culture tries to conceal his love for his religion, as he does that for his wife."

"Love, mildness and beneficence may be called the moral beauty."

"A broken arm heals easier than a broken heart."

"Courage does not consist in blindly disregarding danger, but in facing it and overcoming it."

"The direction of love is an outward one, that of dignity an inward one."

"Teach the child to consider all animals sacred—in short, give him the heart of a Hindoo, instead of that of a Cartesian philosopher."

"Cruelty in childhood against dumb animals prophesies cruelty against their fellow-men."—V. SCHEER.

NOTES ON EDUCATION.

Massachusetts has done herself honor in placing upon her State Board of Education a practical, competent woman. Miss A. W. May, of Boston, has just been nominated and confirmed as a member of that Board. Miss May, as a member of the Boston School Board, has had a long and valuable educational experience.

There is no question but that the teachers in our public schools should be better paid; and there is also no question that an educated, thorough, and liberal service should be demanded from them. At present teachers cannot be severely blamed if with the poor rewards held out to them, they do not better prepare themselves for their work. "The matter for wonder is," says *The Telegraph*, of Philadelphia, "that teachers who are at all qualified should be obtained for such rates of pay, and it is certain that the service of the schools holds out the smallest possible inducements for intelligent and capable men and women to remain in it a moment longer than the direst necessity compels."

Colonel F. W. Parker, the superintendent of the now famous Quincy schools, and the person who has chiefly made them what they are, has been lecturing on "teaching methods" in a Massachusetts meeting. So far as possible, he said, the home life should be carried into the primary school, and the child's school life should be a pleasant one, in which many good times should occur, and the dull ones should be quickened by easy and cheerful methods. If a child could be taught to read in three years he should be satisfied; and in regard to both reading and spelling, the child should associate the word with the object. They should spell from form, and should see the word on the black-board. Two-thirds of the children learn the words without association, and they are to them as so much Chinese, Greek or Hebrew, which is entirely wrong, for each word should start as a real thing with the child, as the word "candy" stands for something real. In penman-

ship he would train eye and hand for two years, would practice first on the board, using the letter *i* as the basis from which others are formed, and while the pen should be held in a certain position the pencil might be held any way. In teaching numbers, simple child language should be used, and the child taught the two principles only to separate and combine objects. They should be shown the object and the sign number; and the second year should enter upon written work, only, however, in simple combination of figures, and should not be taxed too heavily in figures or the primary grades. The younger children should be kept busy by blocks, by tables of numbers to unite, by splints to weave, by frequent gymnastics, and, above all, the care of them should be given to the best teachers, who combine with tact, experience and knowledge a genuine love for the child.—*N. Y. Tribune.*

OUR SCHOOL SYSTEM.

WHAT HAS BEEN DONE, AND WHAT REMAINS TO BE DONE.

Previous to 1865 there was no school *system* in this State. Many counties had schools, some of them good, some of them bad, and most of them very indifferent; but there was no *system*, no continuity, no interdependence, no supervision, no provision for securing qualified teachers. Many attempts had been made to attain a State system, but all had failed, either for want of funds, or because the operation of the law was made contingent on the popular vote by counties or districts.

The law of 1865 first made it possible to have a State system by giving the schools partial support from the State treasury. It remained in force hardly long enough to show its legitimate fruits; but its fundamental principle, "the property of the State shall be pledged for the education of the children of the State," has been re-asserted and confirmed by all subsequent legislation. The law of 1868 removed most of the centralizing and unpopular features of the original law but left the essential parts of the system unaltered. Many minor but important improvements were made in 1870, 1872 and 1874; and at the present time it is the opinion of men outside the State who have made school legislation a special study that the letter of our school law is not surpassed for brevity, clearness and practical capabilities by any other State in the Union.

Let us state briefly what our school-law has done for us :

1. It has given us that which we never had before, and without which no general system was possible, *sufficient aid from the State treasury*. There is more involved in this than merely the right to take \$400,000 a year from the State and expend it for the support of the public schools. It involves the great principle already stated that the property of the State is held pledged to the education of the children. It transforms the obligation to maintain schools from a local duty to a State obligation. It makes the sovereignty of the State responsible for general education. The Constitution itself guarantees to the citizens "a thorough and efficient system of free public schools." But the mode of distributing the State appropriation marks even more clearly the *universal* character of our system, as distinguished from the local systems which prevail in many other States. It is distributed in proportion to the school population, by which means the city of Baltimore, and the wealthier counties are made to contribute to the support of schools in the poorer counties. Some of them receiving from the State school tax four times as much as they can contribute to it. It is this that makes it possible to diffuse elementary education *over the whole State* in place of confining it to a few favored localities.

2. It has given us the means of supplementing the *State* appropriation by a sufficient *County* appropriation. The County School Commissioners are limited to a county school tax of ten cents on the hundred dollars; but by obtaining the consent of the County Commissioners, any required sum may be levied. The county tax is distributed on the same principle as the State tax, so that the poorer districts have the same advantage as the more wealthy.

3. It has given us continuous schools for at least three terms (seven months and a half) in all the counties (Garrett, excepted); for nine months in some counties; and for the whole school year of ten months in thirteen out of the twenty-three counties of the State.

4. It has given us a continuous system of school-work, by which a child may be transferred from one school to another, or a teacher from one school to another, without interrupting the regular progress of any pupil or disturbing the routine of any school. Maryland has taken the lead in this important matter of so grading and regulating the common country school as to ensure continuous instruction to the children under one uniform plan, in spite of changes either of pupils or teachers.

5. It has given us uniform text-books in the several counties, so that a child may be removed from one school to another in the same county without change of books.

6. It has given us efficient local, county, and State supervision. The local supervision belongs to the Board of District Trustees, three in number, who nominate the teacher (subject to confirmation by the County School Board,) attend to the repairs of the school-house, take charge of the property, look after fuel, and audit the teacher's accounts. The county

supervision is complete and the control almost absolute. Limited only by the amount of money in their treasury, the County School Commissioners build houses where they please, furnish them as they like, pay teachers such salaries as they think proper, and select such text-books as they approve. The County Examiner is their agent; he is not allowed by law to attend to any other business; he is paid for giving his whole time to school work; he gives bond for the faithful discharge of his duties, and is required to visit every school in his county at least twice a year. The State Board of Education has no direct control over either District Trustees or School Commissioners, but it exercises indirectly a great influence in harmonizing the different parts of the system and imparting energy when needed. The State Board makes By-Laws (not at variance with the school law) for the government of teachers, schools, and school boards, receives regular reports, and consolidates and tabulates them; and is authorized to construe and explain the school law, and to decide all controversies arising under it. It has no power to appoint teachers or county examiners, but can suspend or dismiss any of them for cause. The Principal of the State Normal School is the Executive Officer of the State Board of Education under the By-Laws.

7. It has given us facilities for securing well qualified teachers by means of the Teachers' Institutes and the State Normal School. Partly by express legislation, but principally through the necessities of the case, the State Normal School has become the dome of this great temple of learning, giving it completeness of finish and roundness of outline, and at the same time binding the different parts of the structure into one harmonious whole. From it as a centre are diffused to the most distant limits of the State those influences which make educational progress possible. It is exactly in proportion to the acceptance of normal ideas and normal methods that the schools become efficient and popular. Consequently it may be expected that attacks on the school system of the State will always begin with assaults on the Normal School. The enemy knows exactly where the key of the position lies.

Such is a brief statement of what the school system has done for us, or to speak more accurately, what the school law has put in our power to do for ourselves. It cannot be claimed that the law is perfect; though perhaps it is like the laws which Solon gave to the Athenians, "as good as they were capable of receiving." That it can be improved in theory no sensible man will deny; that it can be bettered in practice every observant man will admit. What then remains for us to do?

In every district and in every county there will be found men to point out defects and errors; and the most natural remedy that suggests itself is new legislation. The race of political infants who rush to law as a panacea for every pain (like babies with their nursing bottles) is not yet extinct. Hard times and bad habits are equally supposed to be under the control of the men who make our laws. If a school house is built in the

wrong place, or a teacher proves incompetent, or there is a contest about the adoption of text books, "Give us a new school law," cry these infants in concert. But the people of Maryland will think twice before they root up this magnificent tree which they planted themselves, and which they have digged about, and watered and pruned for eleven long years, until now it gives them rich fruit and abundant shade,—they will think twice before they lay the ax to the root of such a tree for the purpose of planting a sapling in its place.

But what remains to be done? Simply, to enforce more vigorously the law as it now stands. When that is done, if the results are not all that can be desired let us have new or additional legislation. In the meantime the spirit of the law should be more faithfully observed, and, wherever it is possible, the very letter of the law stringently executed.

We need more faithful observance and a more energetic development of the law:

1. As regards the County School Commissioners. These officers are appointed by the Judges of the Circuit Courts. Notwithstanding the sentiment that has been manufactured in opposition to this mode of appointment, we have had better school commissioners under it on the average than could have been obtained by popular election or any other mode of appointments. But there have been occasional exceptions to the rule. It would seem only right that none but friends of the school system should be placed as guardians over it. Yet it has happened, in exceptional cases, that men known to be indifferent or suspected of being enemies, have received these appointments. A proper exercise of discretion in this most important matter would remove all ground of complaint.

A practice has of late grown up, contrary to the spirit of the law, of dividing the duties and privileges of the Board of School Commissioners among the several members. The law imposes no duty, whatever, upon a School Commissioner as such; all the duties and obligations are assigned to the *Board* of County School Commissioners. All the customs which divide the duties of the corporation among the individual members, with the implicit understanding, that each is bound in courtesy to abstain from interfering with the duties assigned to each of the others, are contrary to public policy, which requires the bona fide consent of all the members (or a majority of them) to every corporate act.

A very important part of the duties of County School Boards consists in the exercise of their power to reject improper nominations for places as teachers. Local officers are peculiarly apt to be afflicted by local considerations, and it was for the purpose of securing the schools against undue local influences that the central (county) Board was given a veto power. If this power is not used fearlessly, the purpose of the law is not carried out.

2. As regards the Trustees. It is hard to find men, who, without any compensation, will devote themselves assiduously to the discharge of a

public duty, involving labor and responsibility. Yet this is what is required of school trustees; and the selection of such men imposes a very delicate responsibility on the County Board. The most important function of the trustees is to select a teacher. If they fail to get the best that is procurable, the law is neutralized in its most essential particular. But common observation and common rumor warrant the assertion that in many instances, perhaps in a majority of instances, the Trustees do not search for the very best teacher obtainable; but for a teacher "good enough for the place," who shall have certain other qualifications, which are considered to be of even more importance than mere professional skill.

3. As regards the County Examiner. His most essential duties are the examination of teachers and the official visitation of schools. He holds the key by which candidates can get admission to the school room as teachers. If he has back-bone enough, he can in three years rid his county of all incompetents. But his back-bone sometimes needs stiffening. He is required to visit all the schools of his county at least twice a year. Sometimes he does not get round once a year. There are schools that have not been visited once in two years. The Examiner is, in fact, the Principal of all the schools in his county. He is required by law to be capable of giving "normal instruction." He should, when necessary, show the teachers how to teach and manage their schools. If he fails in this, the school-law is not properly executed.

4. As regards Teachers' Institutes and Association. It is made the duty, by law, of all school officers to assist and encourage these agencies. As a matter of fact many are bitterly opposed to them, and especially to the Institute. In this particular, again, the school law is not faithfully enforced.

5. The law provides for the beginning of a School Library in every district; and requires the County Board to give ten dollars a year towards a library, provided the district will subscribe ten dollars. Had advantage been taken of this provision in every district, for the last ten years, there would now be scattered over the State nearly \$300,000 worth of good books, accessible to the citizens. The actual value of the district libraries at present is probably not the thousandth part of this. Here, also, the spirit of the law has not been apprehended and developed.

6. The law requires all school houses to be built under plans approved by the Board of County School Commissioners. This implies that these Boards should take pains to make themselves acquainted with the best models, and should exercise great care in making suitable selections. The appearance of many houses would indicate that very little care has been exercised in these matters.

7. The State Board of Education, by exercising their power to suspend or dismiss incompetent teachers and examiners could exercise a wholesome and purifying influence upon the administration of the school system. This power has never been exercised—but not because it was not needed. Here, too, the law has not been energetically administered.

It will thus be seen that the best results of our school system cannot be obtained unless by the cordial and vigorous co-operation of all the agencies connected with it: Trustees, School Commissioners, State Board, Teachers, Examiners, the Normal School and Teachers' Institutes. As in a living body the weakness of one organ affects all the rest, and deteriorates the whole system, so the imperfect execution of any part of the school law impairs the efficiency of the whole administration. It is only by bringing up every part of the organization to the highest degree of efficiency that we can secure the full benefit of the system. And this can be done by concentrating public opinion on the law itself, its requirements, its purposes, its spirit; and on the manner in which the appointed officers enter into its spirit, accomplish its purpose, and execute its requirements.

CECIL COUNTY TEACHERS' ASSOCIATION.

The Teachers' Association of the 6th, 7th and 8th districts met at the Port Deposit High School on Saturday, September 13th, and was opened with prayer by Rev. John Squier. At roll-call the attendance was found to be good. The minutes of the previous meeting were read and approved.

The committee on Relief Association had no report to make, and, at its own suggestion, was discharged. The Rev. John Squier gave a short account of the State Teachers' Association, which met at Hagerstown.

The election of officers was next in order, and resulted as follows: President, Mr. F. S. Everist; Vice-President, Mr. H. Arthur Stump; Secretary, Mr. G. W. Hanna; Executive Committee, Messrs. V. H. Watts, I. L. Crothers, J. D. C. Hanna, O. L. Blackburn, Miss H. L. Owens and Miss Nichol.

The Executive Committee reported the following programme for the October meeting: Essayist, Miss Annie Quinn; reader, Mr. A. L. Crothers; questions for debate 1st, Is material progress a true test of national greatness? 2d, Was taxation, without representation, the true cause of the American revolution? 3rd, Would the phonetic system of spelling be preferable, and is the change possible? Disputants—Messrs. Edward Coale, O. L. Blackburn, J. Campbell, C. D. Crothers, H. Arthur Stump, and V. H. Watts. The second question was chosen by the debaters for discussion.

The literary exercises being then in order, Miss Mollie Johns read a poem entitled "The Palmer's Vision." Mr. H. Arthur Stump read an essay on "Comparative Politics." The question, "Would it be judicious to abolish the book fee?" was discussed in the affirmative by Messrs. V. H. Watts and F. S. Everist, and in the negative by Rev. John Squier and J. D. C. Hanna.

On motion of Rev. Mr. Squier, the Rev. N. M. Browne was unan-

imously elected an honorary member. The Rev. Mr. Squier was appointed critic for the next meeting. Mr. J. D. C. Hanna, as critic, reported briefly.

On motion, adjourned to meet at Port Deposit, on Saturday, October 4th, 1879, at 1.30 P. M. The meetings of the Association are free, and a cordial invitation is extended to all persons interested in education.

G. W. HANNA, *Secretary.*

FOREIGN CORRESPONDENCE.

TEACHERS' INSTITUTE IN SWITZERLAND:—The teachers of the Primary Schools of Canton Neuchatel, Switzerland, met Sept. 22d to 24th inclusive, in the city of Neuchatel, for the purpose of holding their regular annual Institute. Their plans resemble those of Maryland teachers very much, except that the leading subjects are treated more like those of our State Teachers' Association than like County Institute discussions. The writer was present only one afternoon, during which miscellaneous matters were the order of the day. About 170 teachers were present, 50 being ladies. After the usual miscellaneous business the librarian made his report. The State (Canton) Library is made accessible to all teachers by means of the mails and free of postage. The report shows that 1,300 books were mailed during the year, only four of which had not been accounted for, on the day the report was made.

The next report was on the revisions of those sections of the school law relating to elections and removals of teachers. The summary of the report is simply this: The committee passed a series of resolutions in which they express their warmest thanks to the legislative authorities for considering the opinions of the teachers as serviceable to future legislation, and then beg that the law remain as it is.

These teachers must have a diploma, and hold their positions during good behavior, and as long as they teach satisfactorily. Two proposed revisions of the law call for re-elections and annulling diplomas on account of immorality. A diploma rendered useless can never be regained. On the first point, it was argued that periodic re-elections would be very bad for the schools as well as for the teachers, on the ground that the latter would be at the mercy of unscrupulous parents, whose false reports often make enough of public impression to cause teachers to be removed, to the detriment of the schools they teach. As to diplomas, it was claimed unjust to deprive a man, forever, of teaching school, on the ground of immorality, which was construed to mean an act for which a teacher is condemned by the verdict of a jury. The reason assigned was, that a man may fall but may repent of his wrong-doing, in the course of time, and might be a wiser teacher than before. Prof. Stoll, School Inspector,

explained that the diploma is granted because of a certificate of good moral character, and preparation to teach morality by precept and example, as well as other subjects. When these conditions cease to exist, the diploma tells a falsehood and ought to be withdrawn. The simple removal of the teacher by the authorities does not suffice; for he might use that diploma as a recommendation elsewhere, only to deceive and ruin another school, besides casting reproach upon those who granted the diploma. After much discussion the vote of the teachers sustained the decision of the committee, by a small majority. The legislators will probably revise the law, in some way, at any rate.

We are sorry we could not be present at the other sessions to hear the essays and discussions on moral training and the present wants of the Primary Schools as relating to active life and the higher schools. The third day was devoted to practice in vocal music, and a grand concert, followed by a banquet, closed the Institute. So much stress is placed upon the value of these meetings that the State pays the teacher's travelling expenses, his daily salary as teacher, and 60 cents a day besides.

A. R.

EDITORIAL DEPARTMENT.

PUBLIC SCHOOL SEMI-CENTENNIAL.—On the twenty-first day of September, the Public Schools of Baltimore City had been in operation fifty years. To celebrate this notable occurrence in the history of Public Education, a grand educational mass-meeting was held at Druid Hill Park on the twenty-fifth of the month. The gathering was probably the largest ever held in Baltimore and was worthy of the cause in which it met, showing the great interest which the people of Baltimore take in their public schools. The number of people in the park during the day has been variously stated at from 50,000 to 180,000 persons; the latter number is the official (?) estimate. Fully 40,000 men, women and children were gathered in a solid mass around the stand on which were seated the orators of the day.

The exercises consisted of singing by the school children, accompanied by the Fifth Regiment Band, and speeches by Governor Carroll, Mayor Latrobe, John T. Morris, M. A. Newell, Francis T. King, J. Morrison Harris, Andrew Reese, Michael Connelly, Frank P. Stevens, and Joseph Thompson. We regret exceedingly that want of space will not permit us to print all the addresses in full.

The address of Mr. Morris, President of the Baltimore City School Board, was chiefly a sketch of the origin and progress of the Public Schools of Baltimore. In concluding his remarks he said, "By general

instruction we seek as far as possible to purify the whole moral atmosphere, to keep good sentiments uppermost, and to turn the strong current of feeling and opinion against immorality and crime. We confidently trust that by the diffusion of general knowledge and good and virtuous sentiments the public fabric may be secured as well against violence and overthrow as against the slow but sure undermining of licentiousness. It is every man's unbought birthright. It is the great blessing which the constitution has secured to him. It is his solace in life, and it may well be his consolation in death, that his country is pledged by the faith which it has plighted to all its citizens to protect his children from ignorance, barbarism and vice. We commend to you our public schools as worthy of your confidence and support, and ask your aid in removing from them the imperfections and errors which still exist, so that they may attain that proud position which their founders intended when they declared them to be for 'the honor, the happiness and the welfare of our city.' "

Governor John Lee Carroll was the next speaker, and in referring to the benefits of education he said :

" Modern civilization has decided finally that no nation can afford to leave the masses of its people in ignorance, and as they cannot educate themselves, the expense must be borne by the public. This was doubtless the intention of those who framed our government, for, instead of placing authority in the hands of a special class born to rule as of divine right, they threw upon the people the necessity for improvement by giving to each one the power of obtaining the highest honors. And so it has happened, in this regard, that what in other countries has been left somewhat to chance or accident, is here regulated and controlled by law. And now the responsibility rests with those who have in charge our system to see that its practical workings are kept up to the standard of the past. Let them see to it that the youth of the State are provided with teachers who will impart to them not only the knowledge that may be found written down in books, but also the far more important lessons from what may be termed the unwritten law ; to lead them to the knowledge of what high tone and honor demand, and compel them at all times to listen to its callings ; to lay before them the necessity of learning to obey in order that they, too, at some future day may know how to rule ; and, above all, to impress upon them the importance of their obligations to their fellow-man. If this can be done in the true spirit, we have no fear but that education will continue to be the greatest source of strength that we possess as a nation. "

Mayor F. C. Latrobe, on being introduced, began by speaking of the marvelous growth of the public school system in Baltimore, and continued :

" The thirty-five thousand pupils enrolled constitute in themselves one-tenth of the population of the city ; the average annual increase in the

number of scholars is over 1,000, requiring proper facilities in the erection of school houses for their accommodation. For fifty years has the system been fostered and maintained; few of us on this platform will probably live to see its centennial anniversary, but there are many among you children who will in 1929 remember this occasion. And although no longer young and light-hearted as you are to-day, with neither cares nor responsibilities, you will, perhaps, as old men and women, visit this spot and recall the events which took place here fifty years ago. I think you may find then that the Baltimore and Maryland of the twentieth century will yet cherish the institution of free public education as the one great bulwark that will insure a continuance of the liberties and happiness of the people."

After extending his congratulations to the members of the school board Mr. Francis T. King said:

"Our public school system is our proper boast and our chief hope for the future. It, more than anything else, insures that liberty which the constitution sets forth. For what avails it to offer a secure home, an unlimited franchise and equality to all men if the mind is dwarfed and dulled by ignorance and prejudice, so that the true object of all these blessings is not known? It is a great thing to be thus early identified with the progress of the country; it is a great thing to become an American citizen with all its advantages and responsibilities, which your present position as public school scholars points to; but wide as our land is, and great as are its resources and institutions, there is another tie which binds you, other and broader interests, which you have apart from country or constitution—the ties of a common humanity. Living at a period when the practical inventions of science have connected all parts of the globe, and bring tidings from everywhere, our hearts must throb in sympathy with the victims of famine and pestilence, our minds must be quickened by hearing of new discoveries and inventions, our aspirations must soar higher at the tales of heroism and self-sacrificing labor, or shrink from and be lowered by hearing of crime and wrong. So the whole world is bound together in a common brotherhood. In closing, let me impress upon you this great truth—'He is the best citizen of earth whose citizenship is in Heaven.'"

Hon. J. Morrison Harris said that he was there to show his earnest sympathy with the occasion and the cause. When he looked out upon this magnificent gathering, this multitudinous outpouring of children and teachers and friends, and contrasted the present and the past, he felt that speeches were not needed to heighten the popular enthusiasm, or to convince the general mind that near and dear to the heart of this community are our public schools. Mr. Harris said that the occasion and the scene before him made an irresistible appeal to every man of reflection and sensibility, and gave splendid illustration of the faith of the people of

Baltimore in that grand, underlying principle and necessity of a free people—popular education; that grandest buttress of liberty; that influence mightier than the sword to build up and conserve the State; that potency of the people, with all its deviating and purifying influences, without which self-government must be a failure and republics could not exist. In concluding, he urged as a personal good and a public duty, the fealty of all to our public school system; the exercise of wisdom in its supervision and control; the correction of any errors that may mark it, and a more general and earnest effort so to strengthen and enlarge it that the future may yet more firmly establish it in the hearts of the people and crown it with the general benediction.

Prof. M. A. Newell was the next speaker, and in the course of his remarks he said :

“ Our schools are good, but they are not perfect. If they would continue to live they must continue to improve. Stagnation is death, and if you ask me in what direction this improvement is to take place, I would say in the closer alliance of educated intelligence with manual industry. If in the past education has been looked up to as the redeemer of mankind from the necessity of physical labor, the education of the future must be the handmaid and bond-servant of the workingman. If the past aim of the schools has been to prepare men to be teachers, lawyers, doctors and preachers, the schools of the future will give them equal preparation for becoming farmers and mechanics. I hope I shall not be misunderstood : our public schools do not make physicians, neither can they make farmers; but the education of the future must not be monopolized by the non-working minority. Whatever can be taught in school to make a man a better worker must not be denied him, and the education of the hand must be allowed its place alongside of the education of the brain. The past century has set us free from the old dogma that ‘ignorance is the mother of devotion.’ The coming century must deliver us from the equally absurd superstition that ignorance is the mother of industry. It must prove by experiment that there is no incompatibility between the highest intellectual culture and the severest forms of physical labor. I have no doubt that our schools will prove themselves equal to the task which the future will set them. Cherish them, my friends, as the anchor of our hope, the bulwark of our institutions. God grant that under their fostering care ‘our sons may be as plants grown up in their youth, that our daughters may be as corner-stones polished after the similitude of a palace.’ ”

Mr. Andrew Reese, the first scholar who entered the public schools, gave some interesting recollections of the first public school, and was followed by Mr. Michael Connolly, who was appointed a teacher forty-five years ago. After the singing of the doxology, Mr. Frank P. Stevens was called upon for a short address, as was also Mr. Joseph Thompson, blacksmith, who was the first graduate of the City College.

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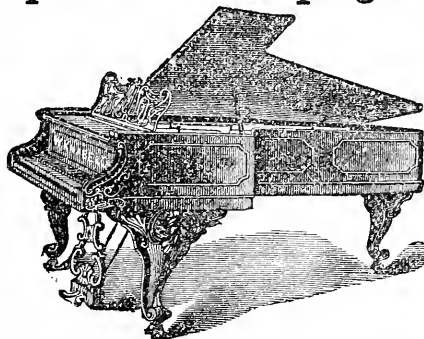
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THE MARYLAND SCHOOL JOURNAL.

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DEVOTED TO THE CAUSE OF EDUCATION.

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No. 4.

ADVANTAGES OF DRAWING.

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1. *It trains the hand and sharpens the vision.* The hand, in the first attempts at drawing, makes only zigzag lines, but by repeated effort, it becomes almost as accurate in its free movements as if guided by ruler and compass.

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2. *It furnishes excellent exercise for conception, memory, and the imagination.*—Drawing contemplates not only the work of

copying objects as they are seen in nature and in art, but also in representing all the properties of the individual of a class, combining them in one picture which shall resemble not only one object, but shall be the highest type of the whole class, It teaches the pupil to draw not only the particular object, but also the typical object. A course of drawing, then it is evident, would tend to beget a habit of generalization, and thus the conception be largely exercised and developed.

The person who practices drawing finds it necessary to carry in his mind forms, which, when presented, could not, owing to circumstances, be copied. Pupils in a course of instruction, in order to prepare them for such exigences, are required to draw frequently from memory, and thus this faculty receives abundant exercise.

Again: the adept in drawing is not satisfied with mere copying, but aims at new creations. Calling his imagination into active and constant exercise, he brings out new designs for all kinds of manufactures, new figures for carpets, wall-papers, calicoes, etc. He studies works of art, the masterpieces of the art world, not only for the pleasure they give him in their contemplation, but also for the useful hints he may receive for his own work; enters the field of criticism, and learns to distinguish the good from the bad, to know the excellences and defects of a work of art. A course of instruction in drawing, to be comprehensive, must give constant exercise to the imagination, by requiring work in original designing from the very first. The pupil is led to invent new figures—forms very simple at first, but becoming more intricate as he advances. He criticises his own work; he criticises the work of his fellow pupils, till, in the end, he becomes competent to judge a work of art. Thus, by the culture given his imagination in a course of instruction in drawing, he can be introduced into the arena of art, and be led to revel in all its beauties.

3. *It develops the public taste.*—If pupils were to take a course in drawing, beginning at the very first entrance into school, and continuing throughout, their taste in matters of art

would not only be cultivated, but, what is of more account, would be made exceedingly quick and active—quick to discern beauty in all the adornments of art, and to suggest or devise something new, more beautiful or more appropriate in furniture, gas-fittings, carpets, curtains, table-ware; in clay, glass, or silver, in the decorations of various objects, such as railway-cars, steamboats, public buildings, watches, jewelry, products of the loom and the foundry, etc. Taste, as any other power, if it receives attention early in life, will be more likely to show itself with more power in after years; for want of this early attention so many men and women seem to lack in taste altogether. Persons who, from such a course in drawing, enter the workshops, will be able to exercise more taste in their work, and to gratify their own more cultivated feelings—will be led to make improvements in artistic forms and adornments of their products, and will not only meet the wants of an improved public taste, but will aid in giving it still further cultivation. Drawing in our schools now means, for the next generations, no mere daubs on parlor walls, no tumble-down fences about our houses, but beauty and taste everywhere and in everything.

4. *It exerts a beneficial influence in relation to other studies.*—Drawing trains people to see correctly. Reading well depends upon the quick apprehension of the forms of words as presented to the eye. It follows, therefore, that if a child learns to draw, he will learn more rapidly to read well than he otherwise would. As drawing trains also the memory of form in general, and the intellectual part of the process of spelling is in great measure an effort to recall the form of the written word, it follows that the study of drawing will greatly aid a pupil in acquiring the ability to spell well.

Penmanship is largely if not altogether, indebted to “seeing” and “manual execution,” both of which are secured through drawing. In mathematics something more is needed than a mastery of logic and methods; neatness and precision in the solution of problems are also desirable, and these can be

secured through practice in drawing. In no other way can so thorough a knowledge of local geography be acquired as through the agency of drawing. Knowledge thus gained is more permanent. Drawing also offers the most efficient of all aids to instruction in natural history and natural science.

5. *It economizes time.*—Drawing, by training to closer habits of observation, enables pupils to master other subjects with much greater ease and rapidity; hence, in these, it will save all the time it will demand for itself.

6. *It develops the faculty of order.*—The systematic drill which drawing affords is a most excellent means for securing the general development of the faculty of order. Frederick the Great used to recognize his soldiers long after they had left the army by the good order of their houses. A teacher of drawing might recognize his pupils in the same way. An instance is known of a boy who had attended school where he had been obliged to learn, among other things, the greatest neatness in writing and drawing, who brought about, on his return home, a most beneficial reform in the external life of his father's entire family by the vigor with which he opposed any lack of cleanliness and order.

7. *It makes artistic workmen.*—A man who can form a beautiful vase or pitcher, chair or table, is an artistic workman. It is equally true that the man who cannot make beautiful things is not an artist. If a workman wishes to rise above his fellow-workmen by superior skill, we know of no readier or quicker way than by studying the laws of beauty; this subject must be pursued until he can distinguish between the beautiful and the ugly, the graceful and the ill-shaped, the refined and the coarse. The laws of beauty can only be learned through the study of nature and art. It is knowledge, and knowledge alone, that will enable any one to form an accurate judgment in respect to the beauty or want of beauty in an object.

Where artist and artisan are combined in one and the same person, we find the cheapest and best labor.

8. *It induces a more healthy physical condition.*—It affords,

by its very attractions, an agreeable change from studies or labors of a more irksome or fatiguing character. It refreshes the mind, and through the mind induces a more healthy physical condition. Drawing, also, by inculcating a sense of neatness and order, will also stimulate more or less the sense of cleanliness, and thus conduce to the health of the body.

9. *Drawing is the Language of Industry.*—There is no department of art, science, or industry where drawing is not called into requisition, for by its aid facts and ideas are expressed which could not otherwise be understood. It can be truthfully said that anything that is well made is made from a drawing.

10. *It has also a moral and religious value which is far from being contemptible.*—A young person who has learned drawing will find both employment and amusement to fill up time that would otherwise be idled away or spent in a hurtful manner. In his study of nature for models, he will to a great degree be led to contemplate with admiration and love the author of the beauty and wisdom revealed to him at every step. Parents who have acquired some skill in drawing, will find in it a means of discipline to interest and amuse their children, and to engage them in a delightful pastime.

II.—INDUSTRIAL.

1. *It creates more beautiful art objects.*—With this increase in the number of beautiful objects, will come a corresponding improvement in the popular taste and a consequent increase in their demand and value, thus benefiting the art industries of the country.

2. *It fills manufacturing establishments and workshops with skilled workmen.*—If our manufacturing establishments and workshops are filled with educated workmen, their efficiency will be increased thirty-three per cent. A skillful artisan will take a working drawing and make the thing required at once, while unskilled workmen must have everything explained very minutely before attempting to construct the thing which the

draft calls for, thus taking from the number of working hours not only his own time, but also that of the superintendent or foreman. Educated artisans are the cheapest and best.

Our manufactories being filled with skilled artistic workmen, give a better population. It is better, because it is more prosperous, has more money to spend in the procurement of all that is essential to the comfort and happiness of life. Churches, schools, farmers, gardeners, all share in the prosperity of the educated, thrifty artisan. If the city of Worcester, Massachusetts, full as it is of skilled workmen of all kinds, is compared with a city where manufactured articles are crude, the difference will be found to be most striking.

3. *It will enable American manufacturers and persons engaged in other industrial pursuits not only to hold the home market, but to compete successfully for superiority in foreign markets.*

—Good material and cheapness have characterized American products for many years. Add to these features beauty of form and decoration, and America will not only hold the home market, but will be enabled to compete successfully in foreign markets for industrial supremacy.

4. *It will place a premium on skill and taste.*—In all our manufacturing establishments and workshops, the educated artisan not only receives the highest salary, but occupies the most responsible positions. Artistic workmen command the best positions; hence their skill and taste are at a premium.

5. *It will add to the wealth of the individual, the nation, and the world.*—The educated workman receives higher wages than the uneducated; the former, then, is in a position to save money, while the latter is not. Whenever a nation is able to make art products so beautiful that the exports of manufactured goods exceed in value the imports, it enriches itself.

This value does not depend alone on the quantity of goods, but on the amount of labor, skill, invention and artistic thought and taste expended on their production. One cause of the rich returns which Switzerland and France have gathered from the wealth of other peoples is, that they export a

minimum of bulk and material with a maximum of skilled labor, artistic invention and cultured taste.

Whatever productive or art industry adds to the wealth of a nation, must add to the wealth of the world, since nations are integral parts of the world.

III.—PRACTICAL.

Instruction and practice in industrial drawing will be of practical benefit to those engaged in professions, in arts, and in handicrafts.—*Pennsylvania School Journal*.

FIRST STEPS IN WRITTEN LANGUAGE.

BY F. B. GREENE, A. M.

II.

“How are we to become acquainted with these new methods?” is the question which comes from more than one primary teacher. There are no methods so new that they cannot best be mastered by a study of the children who are to be taught. The first requisite for a teacher of young children is that she love and understand them. A real sympathy with children, and a true appreciation of their wants, will remove one-half the difficulties which the teacher encounters.

We are apt to consider the child's first day at school as his initiation into the mysteries of education, as the occasion upon which he places his hesitating foot upon the first round of the ladder of learning. Such is by no means the case, however. For the five or six years preceding this memorable event, he has been storing his mind with knowledge. He has learned more, probably, than he ever will again in the same space of time. His senses have been trained, and his powers of observation may be even more active than those of his new teacher.

How shall he be taught? There are manifestly two methods. One is to allow him to continue in the way upon which

he has already entered. Encourage the development of his perceptive faculties. Let him meet things just as they occur, —as wholes, not after minute and philosophical analysis. This is Nature's plan. The method in common use differs from this essentially. It depends for its success upon the cultivation of an artificially retentive memory. The child's faculties become acute in the recognition of meaningless elements, which, when combined properly, like the parts of a Chinese puzzle, produce the desired result. He learns the names of certain symbols called letters. He associates with them appropriate sounds, and is taught to combine them, by the art of spelling, into words. The process is almost entirely mechanical. The mind has been so completely occupied with it that the words themselves convey no ideas. In fact, it is often claimed that they should not. Reading thus becomes a translation of printed or written symbols into the proper sounds. Writing is only the mechanical combination of elements and principles to form letters and words.

Language is certainly the medium through which we express our thoughts. It is considered in this, and in no other light, when the child first learns to speak. Nature seeks then, as always, to conceal all those elements which our methods so often make prominent, and to present only thought, the very thing which is so successfully crushed in most of our primary schools.

To teach language properly, then, we should employ the first of these methods. We should encourage the expression of thought, not the analysis of words. With this end in view, children should be taught to read and write as companion-exercises. The first should be a thought-receiving, the second a thought-expressing process. The habit of writing should be formed just as was the habit of speaking.—*Primary Teacher.*

IF we could but accept the fact that children learn to spell without spelling, that is, without separate drill in spelling, it would be well.

FIRST LESSONS IN BOTANY.

XIII.—GRASSES.

Teacher.—If you have had difficulty in finding some of the plants that I have described heretofore, you certainly will not have to look far this time, but can collect a number of different specimens in almost any field; for there are no plants which grow in so many places or in so great abundance as the grasses. What class of plants shall we place them with?

Pupil.—They must belong to the same class as the Ferns, the Cryptogams, for there are no flowers on grasses.

T.—You say there are no flowers; what then are these little purple things hanging on to this head of Timothy, or these large yellow ones on the Orchard-grass?

P.—They hang by little pedicels as the Sporangia did on the Ferns.

T.—Let us examine the points where these pedicels are attached; and to do this, first notice that this head of Timothy is made up of a number of bristly or scaly parts. Pull off a few of them without breaking any of the little pedicels, or purple parts hanging to them, and examine one with your microscope.

P.—Each scale looks like the pitch-forks that stick to your clothes when you go through the meadows or woods—only they are green instead of brown.

T.—Are they as smooth as the pitch-forks you refer to?

P.—No! each has a number of little teeth or spines on the sides, and that pedicel with the large purple end comes out of the centre of it.

T.—These two parts which have the teeth on them may be separated; try it, and tell me what you see.

P.—There are two other scales, and two feathery looking parts inside besides the three purple bodies on pedicels.

T.—These outer scales which have the teeth on them are

called *glumes* and the inner scales are called *pales*. These glumes and pales are really bracts or undeveloped leaves, and the central parts are stamens and the pistil. There are in this three stamens with purple, versatile anthers and one pistil with two white, feathery stigmas. Thus we have a perfect flower, but because it has no *perianth* (*i. e.* calyx and corolla) it is called a naked flower.

P.—Why don't you call these pales the corolla, and these glumes the calyx?

T.—The flowers are really in the axils of these pales, and the glumes do not start from the same points that the pales do. If you will look closely you will be able to see that even the two glumes do not start from exactly opposite points. The two glumes usually have no flowers in their axils, but serve as a common envelope for the whole spikelet. The flowers are solitary in the axils of the pales, and in some members of this family you will find several pales and flowers within the same pair of glumes. For example, in this spikelet of Spear-grass (*Poa pratensis*) there are four flowers within the one pair of glumes. While we are looking at the flower let us examine more carefully the ovary. How many ovules are there in it?

P.—The ovary itself looks like a seed.

T.—It has grown fast to the one seed which it contained, and this is a characteristic of this family. The fruit in such a case is called a *caryopsis*. Now let us describe the different parts of this Timothy as we go outwards from the ovary.

P.—There are three stamens with very fine hair-like filaments and large purple versatile anthers, which hang outside of the flower. They are almost the shape of a reel that I wind my fish-line on.

T.—Describe the pales?

P.—There are two, one a little above the other and their edges are ragged.

T.—How do the glumes compare with these pales.

P.—The glumes have little spines on the outer edge of each.

T.—Notice that the mid-vein of each glume is thick and extends at the apex into a long point called an *awn*, so that the glumes are said to be *awned*. In what kind of clusters do these flowers grow?

P.—The flowers are sessile and closely crowded together on the central rachis.

T.—This form is called a spike. Sometimes these spikes are branched as in this Orchard Grass, and then the branches are called spikelets, or sometimes it forms a panicle as in this Spear Grass. There is very little chance for an insect to get at these flowers and to transmit the pollen from the anthers to the stigmas. But in this case it is mostly distributed by the wind, and we always find the grasses growing closely together in dense crowds so that there will not be much of the pollen lost. Describe the stem and leaf?

P.—The stem is about 2 feet long, and has several nodes with alternate parallel-veined leaves starting out from the internodes.

T.—Take hold of one of the leaves and pull it off the stem.

P.—It is split open on one side and extends down to the node.

T.—Are all of the leaves split down in the same way, or did you split this one in trying to tear it off?

P.—They are all open on the side opposite to the leaf.

T.—The jointed stems of grasses are called *glumes*, and this split part of the leaf which corresponds to the petiole and which surrounds the stem is called the *sheath*. Notice that where the sheath and the leaf join there is a little projection of the sheath; this is called the *ligule*. Cut the stem in two and examine it.

P.—It is hollow and white on the inside.

T.—Are the joints of the stem hollow like the other parts?

P.—No! the joints are solid.

T.—What kind of a root has the plant?

P.—It is fibrous, and the roots of the different plants are so matted together, that I cannot separate them.

T.—This is what forms a *sod* and makes a covering for the soil, to keep it from washing away when we have heavy rains. And when we wish to plant some other crop on land, this sod is turned in by the plow and enriches the land. Let us review some of the principal characteristics of these grasses which will apply to all of them :

1st.—The plants have filious roots, and parallel veined leaves.

2nd.—The culms are hollow and the joints solid.

3rd.—The leaves are alternate with split sheaths and have ligules.

4th.—The flowers grow in spikelets and are surrounded by glumes and pales which are alternate.

5th.—There are three exserted stamens with versatile anthers.

6th.—The ovary is a one ovuled. The fruit a caryopsis with two plumous stigmas.

There is another class of plants which we will take up after a while, very closely resembling the grasses, but by applying these tests I think you can always identify them. The name of this order is Gramineæ, and this Timothy or cat-tail grass is called *Phleum-pratense*. Among the other members of the family may be mentioned, besides what are ordinarily known as the different kinds of grasses : Rice, Canary-grass, Oats, Broom-grass, Barley, Rye, Wheat, Indian Corn and Sugar Cane.

THE male principals of the A grammar schools in New Orleans get a salary of \$85 per month ; in the B schools they get \$80. The female principals of the A schools receive \$72 ; in the B schools, \$66. The principals, male or female, of the primary schools receive \$54, second assistants, \$45, third assistants, \$35. The second and third assistants in the A and B schools receive also \$45 and \$35 ; the first assistants get \$54.

MODERN EDUCATION.

BY S. S. WOOD.

It has been remarked that "the whole tendency of modern education is to lift boys and girls to places they are not fitted to fill; to disgust them with work they are fitted to do, which must be done, and which can be easily obtained."

Whether this grave charge be literally true or not, all must admit that it is not wholly false. The education here referred to begins in infancy.

"*Our baby*" is too good to be clothed in anything but the finest of linen, adorned with the sheerest of laces or the richest embroideries; and he is taught to hate the circumstances which compel him to wear "meaner" materials.

"*Our baby*" was born to become the President of the United States, or at least to shine conspicuously in some public sphere, regardless of his natural fitness for it; and he is taught to look down upon all so-called "inferior" occupations.

"*Our baby*" is taught to believe that it is more honorable to live by his wits than by the sweat of his brow; and he is taught to look upon those who labor for a consideration as "waged slaves," thus oppressed and degraded by the government or by their employers.

"*Our baby*" is taught to seek self-satisfaction and complacency of spirit (which alone constitute *true* happiness) only in the relations which he sustains by comparison with those who are supposed to be above or beneath himself in the social scale; and he is taught to look upon life as but a scramble for place, power, and wealth, to be secured by foul means when fair means will not suffice.

All this is wrong.

Every child should be early taught that every *necessary* occupation is equally honorable, and that just as much true dig-

nity and honor may be clothed in rags as in the finest silks or broadcloth. He should be early taught to look *upon* himself, within himself, and to know himself and to thus be prepared to truly appreciate himself and the nature, the attributes, and the capabilities of the wonderful machine which he is to engineer. If this machine is better adapted to the farm than to the office, the studio or the workshop, let him seek such an education as will enable him to be most successful in that particular sphere; and do not compel him to waste his energies in the acquisition of more "accomplishments" which will be relatively less serviceable.

No child should ever become possessed of the idea that money is properly a measure of success; or that it is even useful, except in so far as it may serve to relieve suffering, or to develop and improve the attributes of true manhood. Great wealth is oftener a curse than a blessing.

ENGLISH IN SCHOOLS.*

WHY should English Literature be taught in our schools? and, What is the best way of teaching it? These are the questions which I propose to discuss.

As preliminary to such discussion, it will, I think, be rightly in place to consider, briefly, what our people are aiming to prepare their children for, and what sort of an education it is the proper business of the school to give; that is to say, what form of mind and character, and what disposition of the faculties, it is meant to impress.

Now I take it that a vast majority of the pupils in our schools are not to pass their life as students or as authors. Their main business in this world is to gain an honest living for themselves and for those dependent on them. And no plan

*From the "General Preface" to Hudson's School Edition of the "Merchant of Venice."

of education is just that leaves this prime consideration behind, in quest of any alleged higher aims ; for there really are no higher aims ; and all pretence of such is a delusion and a snare. Some men, it is true, do more than gain an honest living ; but this is the *best* thing that any man does ; as, on the other hand, shining intellectually is the poorest thing that any man does, or can possibly learn to do. Then too most of the pupils in our schools, ninety-nine hundredths of them at the least, are to get their living by hand-work, not by head-work ; and what they need is, to have their heads so armed and furnished as to guard their hand-work against error and loss, and to guide it to the most productive means and methods. And, for gaining an honest living by hand-work, the largest and best part of their education is not to be had in school ; it must be got somewhere else, or not at all. And this rule holds equally true in all the walks of life,—holds as true of the lawyer, the physician, the merchant, as of the shoemaker, the bricklayer, the machinist, the blacksmith.

On this point, our people generally, at least a very large portion of them, have their notions all wrong side up : their ideas and expectations in the matter are literally preposterous. How the thing came to be so, it were bootless to inquire ; but so it clearly is. Parents with us, are manifestly supposing that it is the business of the school to give their children all the education needful for gaining an honest living ; that their boys and girls ought to come from the school-teachers' hands fully armed and equipped for engaging, intelligently and successfully, in all sorts of work, whether of head or of hand. And they are evermore complaining and finding fault because this is not done ; that their children, after all, have learnt how to use books, if indeed they have learnt that, and know no more how to use tools, are no better fitted to make or procure food and clothes, than if they had spent so much time in stark idleness or in sleep. But the fault is in themselves, not in the school ; their expectations on this head being altogether un-

reasonable, and such as the school cannot possibly answer. That, say what you please, is the plain English of the matter; and it may as well be spoken.

I repeat that, with very few exceptions, and those mostly applicable to girls, the most and the best that the school can do, or can reasonably be expected to do, is to educate the mind and the heart; as for the education of their children's hands, parents must, yes, *must* look for this elsewhere: probably their best way is to take it into their own immediate care, and hold themselves religiously bound to attend to it. Possibly, withal, some parents, as also some who drive the trade of idealizing about education, may need to be taught, or warned, that unless the school have something ready made to its hand, unless the pupil bring to it something inside his skull, it cannot educate his mind: brains it cannot furnish; though it is often blamed for not doing this too. And, good as vocal intelligence may be, yet, for all the practical ends, and even the dignities, of life, manual intelligence is vastly better: this it is that makes both the artist and artisan; and without this the former, however it may prattle and glitter, can neither plough the field nor reap the corn, neither tan the leather nor make the shoe, neither shape the brick nor build the wall, neither grind the flour nor bake the bread.

But I suspect our American parents have become somewhat absurdly, and not very innocently, ambitious of having their boys and girls all educated to be gentlemen and ladies; which is, I take it, the same in effect as having them educated to be good for nothing; too proud or too lazy to live by hand-work, while they are nowise qualified to live by head-work, nor could get any to do, if they were. And so they insist on having their children taught how to do something, perhaps several things, without ever soiling their fingers by actually doing any thing. If they would, in all meekness and simplicity of heart, endeavour to educate their children to be good for something, they would be infinitely more likely to overtake

the aim of their sinful and stupid ambition. The man who has been well and rightly educated to earn, and does earn, a fair living by true and solid service, he is a gentleman in the only sense in which it is not both a sin and a shame to be called by that title. Any form of honest service, however, plain and humble, has manliness in it, and is therefore a higher style of gentility, and a sounder basis of self-respect, than any, even the proudest, form of mere social ornamentation. The dull boy, who cannot prate science, but can drive a cart as a cart ought to be driven, or the dull girl who cannot finger a piano, but can rightly broil a beef-steak, is, in the eye of all true taste, a far more sightly and attractive object than the most learned and accomplished good-for-nothing in the world. I have seen men calling themselves doctors, who, week after week, month after month, year after year, were going about making sham calls on bogus patients, that so they might either get themselves a practice or make men believe they had got one; and have thought that the poorest drudge, who honestly ate his bread or what little he could get, in the sweat of his face, was a prince in comparison with them. An aristocratic idler or trifler or spendthrift or clothes-frame, however strong he may smell of the school and the college, of books and of lingual culture, is no better than a vulgar illiterate loafer; nor can his smart clothes and his perfumes and his lily hands and his fashionable airs shield him from the just contempt of thoughtful men and sensible women.

Now so long as people proceed upon the notion that their children's main business in this world is to shine, and not to work, and that the school has it in special charge to fit them out at all points for a self-supporting and reputable career in life; just so long they will continue to expect and demand of the school that which the school cannot give; to grumble and find fault because it fails to do what they wish; and to insist on having its methods changed till their preposterous demands

are satisfied. On the other hand, the school could do its proper work much better, if people would but come down, or rather come up, to a just conception of what that work is. But it must needs fail, in a greater or less degree, to do that part of education which falls within its legitimate province, while struggling and beating about in a vain endeavor to combine this with that part which fairly lies outside of its province. For, in straining to hit the impossible, we are pretty sure to miss the possible. And all experienced teachers know right well that those parents who faithfully do their own part in the education of their children are are most apt to be satisfied with what the school is doing.

It is, then, desirable that children should learn to think, but it is indispensable that they should learn to work ; and I believe it is possible for a large, perhaps the larger, portion of them to be so educated as to find pleasure in both. But the great question is, how to render the desirable thing and the indispensable thing mutually helpful and supplementary. For, surely, the two parts of education, the education of the mind and the education of the hand, though quite distinct in idea, and separate in act, are not, or need not be, at all antagonistic. On the contrary, the school can, and should, so do its part as to co-operate with and further that part which lies beyond its province. And it is both the office and the aim of a wise benevolence in teachers so to deal with the boys under their care as to make them, if possible, intelligent, thoughtful, sober-minded men, with hearts set and tuned to such services and such pleasures as reason and religion approve ; also, to make them prudent, upright, patriotic citizens, with heads so stocked and tempered as not to be "cajoled and driven about in herds" by greedy, ambitious, unprincipled demagogues, and the political gamesters of the day. And here it is to be noted, withal, that any man who gains an honest living for himself, whether lettered or unlettered, is a good citizen in the right

sense of the term ; and that human slugs and do-nothings, however book-learned they may be, are not good citizens.

As for the women, let it suffice that their rights and interests in this matter are co-ordinate with those of the men ; just that, and no more. Their main business, also, is to get an honest living. And the education that unprepares them or leaves them unprepared for this is the height of folly and of wrong. And I hope the most of them are not going to turn students or authors by profession, nor to aim at eating their bread in the sweat of the brain. For things have already come to that pass with us, that any fool can write a book : the great difficulty is in finding people who know enough and have strength enough not to attempt it.

And here let me say that the greatest institution in the world is the family ; worth all the others put together, and the foundation of them all. So, again, the greatest art known among men is housekeeping, which is the life of the family. For what are we poor mortals good for, in head, heart, hand, or any thing else, without healthy, eupeptic stomachs ? and how are we to have such stomachs without good cooking ? So that I reckon housekeeping to be just the last thing any *lady* can afford to be ignorant of. The finest accomplishment too that woman was ever beautified with. This part of woman's education, also, is to be gained at home ; it cannot be gained anywhere else. As for those young ladies who are above going into the kitchen, and learning this great art by actually working at it, my advice is, that they forthwith migrate to the world where the home and the family have no place, and where babies are not to be born and nursed.

Our girls in school, then, should, first of all, be fashioned for intelligent, thoughtful, sober-minded women ; with souls attempered and attuned to the honest and ennobling delectations of the fireside ; their heads furnished and disposed to be prudent, skillful, dutiful wives and mothers and housekeepers ; home-loving and home-staying ; formed for steady loves, serene

attachments, quiet virtues, and the whole flock of household pieties ; all suited to the office of

A creature not too bright or good
For human nature's daily food.

The love of home, and the art of making home lovely, must be mainly acquired in the works and enjoyments of home ; and the best thing that the school can do is to co-operate with the home to that end.

MEETING OF STATE SCHOOL COMMISSIONERS.

The State Association of School Commissioners of Maryland, met in the Normal School Building, Lafayette Square, Baltimore, November 25th and 26th, Jas. W. Pearre, president, in the chair, and Thos. C. Bruff, secretary. The following members were present: M. A. Newell, State Superintendent of Public Schools. Anne Arundel county—Wm. Harwood ; Baltimore county—Thos. C. Bruff, John E. Swift, Daniel Jenifer ; Caroline county—Col. Jas. E. Douglas, Wm. A. Braden ; Carroll county—Jos. M. Newson, F. L. Herring ; Cecil county—Rev. John Squier, F. S. Everist ; Frederick county—Jas. W. Pearre, D. T. Lakin, James W. Troxell ; Garrett county—Wm. A. Brydon, Dr. E. H. Bartlett ; Harford county—Dr. E. H. Richardson, Wm. H. Harlan, Arthur Vosbury ; Howard county—Dr. Jas. T. Williams, John G. Rogers ; Kent county—C. J. Scott ; Montgomery county—Samuel Jones, W. M. Talbott, Wm. T. Jones ; Prince George's county—Dr. W. W. Duvall, R. B. B. Chew ; Queen Anne's county—Jas. W. Thompson ; Somerset county—Wm. E. Jones ; Washington county—P. A. Witmer ; Wicomico county—F. C. Todd, Geo. W. M. Cooper ; Worcester county—Dr. John P. R. Gillis, Geo. M. Upshur, Rev. Wm. Dale, Geo. C. Townsend ; Allegany county—Dr. Geo. B. Fundenberg, J. W. S. Cochrane.

At the meeting held on Tuesday morning, Mr. P. A. Witmer, chairman, submitted the following report. The committee, to whom was referred the question "what changes, if any, are needed in our school law?" respectfully present the following report: So far as your committee have been able to ascertain the opinion of their fellow-citizens, the school law, as it stands, is a fair representation of the sentiments of the people of Maryland. It comprises many of the best features of the best systems of other States, and is becoming every year better understood abroad and more popular at home. The late animated canvas preceding the election

gave a fair opportunity for a full expression of opinion on the subject. No opinion adverse to the system was expressed by any party; on the contrary, all parties indorsed the general principle, while a majority approved the details of the law and the mode of administration.

"There are only two points on which any unfavorable criticism has been made—first, the method of appointing school commissioners; second, the expense of the system. It has been claimed that the appointment of school commissioners by the judges of the Circuit Courts is unconstitutional. The only meaning that can be attached to this word in the present connection is that the constitution does not require the judges to perform the duty, and if they should neglect it there is no way to compel them to perform it. But as all the judges, with a single exception, have performed the extra duty cheerfully and satisfactorily, there seems to be no reason to make a change. This method of appointment has worked well; it is not certain that any other would work better. Of one thing we may be assured, no centralized system, such as prevailed from 1865 to 1868, or such as was proposed in a bill before the Senate at the last session of the Legislature—in which all the School Commissioners in the various counties were the creatures of a central board of education—will be accepted by the people of this State. If any change is made in the present method it can only be by substituting for it a direct election by the people—a method to which there can be no theoretical objection, whatever practical objections might be urged.

"Second, With regard to the expense of the system, your committee would remark that, while the aggregate is large, it is small compared with the work that has to be done. The total annual expenditure for the county schools, including not only teachers' salaries, but buildings, repairs, supervision and every other expense connected with the administration may be stated in round numbers at \$900,000. For this sum the law requires us to provide school facilities for over 200,000 pupils. It is evident that if all who have a legal right to admission were to avail themselves of the privilege the funds would be entirely inadequate. The last school report shows that more than 110,000 were educated in the public schools during the year. This shows the cost of education to have been but little more than \$8 per capita. If we reckon an average school with one teacher to consist of thirty enrolled pupils, then the average cost of such a school for teachers' salary, repairs of house, fuel, furniture and supervision, with a proportionate allowance for new buildings, was only \$240. It is not possible, under present social conditions, to reduce this amount without destroying the efficiency and risking the existence of the schools. It is very doubtful whether the expenditure has not been already reduced below the point that true economy would indicate. We may be able to hold our own, but the loss of \$100,000 annually by the white schools under the provisions of chapter 91, of 1878, will paralyze our power for future pro-

gress unless the voluntary contributions of the people in the several counties shall make up the deficiency."

Prof. Newell argued that the school law had been tampered with or changed as much as the State can now stand. It was not to be understood that the committee think the school law is perfect, but it is better probably that no change in it should be made by the Legislature just at this time.

Prof. Newson favored the report, and coincided with the views of Prof. Newell.

Mr. Troxell thought a change in the law would be disastrous to the teachers, who had yet hardly learned the workings of the present law.

Rev. Mr. Squier argued that after all, the administration of the law, to be successful, must be done properly in the school room.

Mr. P. A. Witmer said the Association should use all its influence to prevent any change being made at this juncture.

Mr. Harlan urged that to elect School Commissioners, instead of their being appointed by the judges, would bring politics into the schools, which is to be deplored. He did not apprehend that any change would be made at the next session of the Legislature, especially if the Association put itself on record against it.

After further remarks by Messrs. Thompson and Scott, the report of the Committee was adopted unanimously.

Messrs. Harlan, Witmer and Thompson were appointed to ascertain under what head the various items which go to make up the annual report should be charged.

Mr. D. T. Lakin, from the committee appointed to inquire into and find out, if possible, why the Comptroller has not distributed to the different counties and to Baltimore city the amount due each from the surplus revenue of the Washington branch of the Baltimore and Ohio Railroad, and withheld by the Comptroller in the year 1877, reported that the chairman of the committee waited upon the Comptroller and requested him to state why this money had not been paid. The reply was that there was no money in the treasury which could be considered as any portion of the surplus revenue referred to in the act of 1839, and, as there was no provision made in the appropriation bills passed by the last Legislature, there was no authority of law for payment. The committee recommend that a committee be appointed to meet the committee on finance of the next Legislature, with instructions to urge upon it the justice and importance of making provision for the payment of this money. The committee also recommended that the Boards of School Commissioners of the various counties of the State and of Baltimore city be instructed to communicate with the members-elect of the next Legislature, giving them all the facts bearing on the subject, and urging them to make a special appropriation to meet the just and legal demand of the public schools upon the State. The report was adopted.

Prof. Newell gave an encouraging account of the schools throughout the State, as gleaned from the reports so far as received.

On Wednesday morning the association again met at nine o'clock. The report of the committee on the free school fund, presented the previous day, was adopted, and the following committee was appointed to confer with the finance committee of the next legislature: Messrs. P. A. Witmer, Washington county; R. B. B. Chew, Prince George's county, and William H. Harlan, of Harford county.

The secretary then read the following report from the Committee on School Houses

"In planning a school house the first thing to be considered is the number of pupils to be accommodated. It may be assumed that the minimum number is 30. The next point is the number of square feet of floor-space and the number of cubic feet of air-space to be allowed to each pupil. Authorities differ on this point; but no authority gives less, under any circumstance, than 15 feet of floor-space by 12 feet of height, or 180 feet of air-space. The best authorities consider double this amount to be desirable, though not practicable. Taking the lowest estimate, the school-room for 30 pupils must have 450 feet of floor-space and 5,400 cubic feet of air-space. This will be supplied by a house 18 by 25 feet and 12 feet high in the clear. Such a house will contain three rows of double desks, five in each row, with four aisles 18 to 22 inches wide, according to the size of the desks, with a space of 10 feet by 18 for teachers' platform and recitation benches, by diminishing this latter space a little, thirty single desks may be placed in the room. The width of the house must be proportioned to the size of the desks used. Assuming the double desks to be employed (as is the case in 99 per cent. of our schools), a house should be built to hold three rows in its width or four rows. It is not convenient to have less than three nor more than four. Consequently a house, or room, should be either 18 feet wide or 23.6. These, then, are our standards of width for double desks. If a house is to be built for 40 pupils we may either increase the minimum length or width. By adding 5 feet 4 inches to the minimum length, we have a house 18 feet by 30 feet 4 inches, which will accommodate 42 pupils. For 60 pupils the house should be 23.6 in width (four rows of desks) by 36 feet long.

"The next point to be considered is the heating and ventilation. Here two rules may be laid down: First—Every school-house should have fire-brick flues, open from the floor to the roof. Second—Every stove should be made a flue, to bring in fresh air for its own consumption. The plan formerly so prevalent of running a stovepipe through the middle of the roof is mentioned only to be condemned. It is unsafe. More houses have been burned through this faulty construction than from all other causes combined; and it makes ventilation impossible. A brick flue is not expensive; it is safe, and by dividing it longitudinally into two sections

it is converted into a ventilating shaft. Even a single flue may be used for the double purpose of carrying off the smoke and discharging the foul air by entering the stovepipe near the ceiling, and leaving a hole near the floor for the exit of cold air. This hole may be fitted with a register, which can be closed if necessary occasionally, to prevent a down draft.

"So much may be said briefly with regard to building a school-house with one room. If more than one room is needed, the following considerations may be found useful: 1. A country school-house ought generally to have but one story. The small saving in original expense made by building a two-story house is counterbalanced by the continued expense of keeping the stairway in repair and by a great loss of convenience. When the number of scholars does not much exceed sixty, the main room should have desks for all the pupils, and a recitation room, with benches only, should be added. This room should be used for small classes, and should have not less than 300 feet of floor space."

The committee to whom was assigned the duty of presenting a uniform system of making their official reports reported a schedule of classification of which consideration was indefinitely postponed.

Messrs. E. F. Perkins, of Kent; William Harwood, of Anne Arundel, and J. W. S. Cochrane, of Allegany, were appointed a business committee for the ensuing year.

Mr. Harwood called the attention of the association to the suit entered against the Comptroller in relation to the indebtedness to Judge W. H. Tuck for services in connection therewith; and a long discussion ensued on the merits of the suit, which, though gained by the association, was barren of material results. It appeared to be the general opinion that some further action should be taken to press the matter to a final termination, in order to secure a direct money benefit. The discussion terminated in the appointment of Messrs. Harwood, Thompson and Chew as a committee, with discretionary powers, to confer with Judge Tuck in order to see what action could be taken in the premises.

A committee consisting of Messrs. D. T. Lakin, of Frederick county; Dr. Fundenberg, of Allegany county; T. C. Bruff, of Baltimore county; P. A. Witmer, of Washington county, and Professor M. A. Newell, was appointed to look after the interests of the association before the next Legislature. The association then adjourned to meet at the call of the President.

SEVERAL native Hawaiians of semi-Caucasian blood are on their way to England to study law, medicine and literature. One intends to write a history of Polynesia.

STATE BOARD OF EDUCATION.

The regular quarterly meeting of the State Board of Education was held in the Normal School Building, Wednesday, November 26th. The following questions were presented by the School Board of Washington county for decision by the State Board, according to the authority vested in them by law :

1. Has the School Board of Washington County the legal right to dismiss a pupil from the county high school for the non-payment of tuition fees?

2. If not, has the School Board any legal method of enforcing the collection of the fees charged for tuition in the high school?

The following were ordered to be entered on the minutes as the decision of the State Board :

1. Any public school where branches of learning are taught in addition to those which are required by the School law to be taught without charge may, in the discretion of the County School Board, and within the limits prescribed by the School law, be constituted and declared a high school or high school department.

2. In a high school or high school department thus established the county board may, at their discretion, charge a reasonable fee for tuition.

3. In case such a fee is not paid, the County School Board may refuse admission to the pupil, or may dismiss such pupil if already admitted.

Several sections of the by-laws were amended and now read as follows :

Art. V. Sec. 11. Teachers shall purchase, when necessary, such articles as are allowed by section 5, Art. VII, and may pay for them out of money received for books and stationary, and present receipted bills for the same, placing the amounts *under the proper heads* in their term reports.

Art. V. Sec. 13, form of teachers contract :

State of Maryland :

County of

.....18

The undersigned, Trustees of Public School No..... Election District No..... County ofdo hereby appoint..... as teacher of said school, subject to confirmation by the County School Board, and at such salary as said Board may direct, to take effect on..... day of18... This appointment to continue from term to term, and from year to year, until revoked according to law (by thirty days' notice in writing, signed by at least two trustees), of which revocation due notice must be given to the County School Board.

Art. V. Sec. 14. If a teacher wishes to vacate the school at the end of the term, *thirty days* notice in writing, previous to the end of the term, must be given to the trustees, *and also to the County School Board*. If any teacher etc.

Art. VII., Sec. 2. The school year of ten months shall be divided into four terms as nearly equal as possible, to be called the Fall, Winter, Spring and Summer terms, respectively.

The Board then adjourned.

NOTES ON EDUCATION.

THE now famous superintendent of the evening schools, Mr. Parker, gave an interesting explanation of his methods at a Massachusetts teachers' meeting last week. He declared that he would teach a child to read as he is taught to talk; teach him from objects; associate a name with an object, repeating it many times, but keeping the eye on the object. It quickens the intellect, and the mind absorbs the name at the same time that it is being pleased with the object. "Don't try at first," he said, "to force new words in a child's mind, but place objects before the eye; repeat and repeat the name, doing it incidentally without making it appear that it is the word that you are trying to get into the mind. Write the name of the object on the blackboard, and if you have facility of drawing, picture a story on the blackboard. There is no danger of overdoing object teaching; a sympathetic teacher will soon find out when the object fails to attract the children. Learning to read is learning a vocabulary; it is learning a name when you see the object for which it is a name. The value of a word depends entirely on the object which it recalls; it is good for nothing else. A great deal of useless work in the school-room is the study of useless words. Let the teacher arrange a vocabulary of words suited for his or her school and teach them. Don't use words in the same sentence that are not related to each other. Write a simple sentence and then by substituting a single letter you can make a new sentence. For instance, 'I see the rat,' substitute c for r to the last word, and you have 'I see the cat.' Well, says a teacher, the child knows what a cat is, but how does he know what see means? Well, hold up, one at a time, half a dozen objects and ask him if he sees. He says, I see a ball, I see a stick I see a pencil. Write a sentence, 'I see a cat,' and you soon by repetition impress on the mind the word 'see,' and the meaning is retained. Have every new word taught written on the blackboard or slate. Teach the script first; they will learn print without difficulty. It is much harder to go from print to script than from script to print. By all means keep the little heads and hands busy from morning until night, and order will take care of itself."—*N. Y. Tribune*.

THE lectures of the current term at Oxford are said to offer nothing of any special novelty or interest. Mr. Patterson lectures on the "Early Relations of the Slavs and the Kingdom of Hungary," and Professor Rhys, it is hoped, will give further information concerning the Celtic and pre-Celtic inhabitants of Britain.

THE Choctaw Nation, which numbers about 17,000 people, has forty schools and two academies. It also pays for the college education of twenty-two students in the States. The office of Superintendent of Education is elective, and has been held by a Choctaw for four years.

EDITORIAL CORRESPONDENCE.

ROADS, FARMS AND SCHOOLS IN KENT.

CHESTERTOWN, Nov. 14, 1879.

After a stirring week's work among the schools of Kent, I find myself this Friday evening, "taking mine ease in mine inn," and with literally nothing to do but to wait for the steamboat which sails for Baltimore in the morning. The temptation to talk over the sights is irresistible, and having no one else to talk to I make a confidant of the Journal.

As everybody knows, Kent County is a peninsula, being "almost surrounded by water," to wit: The Sassafras river, the Chesapeake Bay and the Chester river. The "rivers" hardly correspond to the geographical definition. They are certainly not streams of fresh water running into the sea. On the contrary they are rather streams of (diluted) sea-water running into the land. They are in fact, wide, deep arms of the bay (*baylets* we might call them) with an average tidal rise of about twenty inches, and navigable for steamboats to the eastern limits of the county. From these rivers spread in every direction large numbers of smaller bays or creeks, which extend so far inland that there is scarcely a farm more than three miles distant from the water.

The water-ways of Kent are all that could be desired. The country roads are almost equally good. There are no paved turnpikes, or plank roads; but the dirt-roads are in excellent condition; a horse and buggy can make fifty miles a day on them with ease. The soil has enough clay in it to keep it from being turned into dust in dry weather; and enough sand to prevent its being converted into mire in wet weather. There are not more than three weeks in the year when the level stretches might not be used as a race-track.

Strictly speaking there are no hills in Kent; yet but a small proportion

of the surface—and that mostly along the shores of the river and bay—can be called flat. A ridge of very moderate elevation, running nearly parallel with the rivers forms the water-shed of the county; and from this ridge, on both sides, the land sinks to the level of the bay in graceful folds, the crests occasionally swelling into low rounded mamelons, and the hollows deeping into shallow ravines, under the wear and tear of the elements.

The soil is almost all under cultivation; no county in the State contains so small a proportion of unimproved land. It is mostly a sandy loam, light, and easily worked, but yielding good returns to good cultivation. The staple crops, grown for sale, are wheat, peaches and corn. The farms average about three hundred acres each. They are usually divided into five fields, of which three are worked (in rotation) and two are allowed to rest. Thus in five years, a field gives two crops of wheat and one of corn (or, it may be, two crops of corn, and one of wheat); is one year in clover and one year in pasture.

Peaches are not in as much favor with farmers as they used to be. If the crop fails, as it does once in every four years (speaking roughly) the farmer makes nothing, of course. But if the crop is *very* abundant, the farmer may not only make nothing, but stands the risks of losing. For the expense of handling and shipping is greatly increased, while the market price is greatly diminished. Thousands of boxes were sold last year in Baltimore for less than the cost of freight. The peach-grower makes money, only when the average crop is small; or when he can get his fruit to market a considerable time before or after the "glut."

There is but little timber in the county,—not enough to re-build the fences, and hardly enough to keep them in repair. The osage orange is largely used for fencing; and when carefully kept it makes an excellent fence, and adds materially to the beauty of the landscape, but it is long in growing and requires skillful management. Wire fences may occasionally be seen.

All the modern improvements in agricultural implements find favor with the farmers, except the steam-plough. It seems strange that this labor-saving machine has not yet been introduced into a county so progressive in its ideas, especially as the soil is exactly adapted to it, both in surface and texture.

The educational agencies of the county may be summed up as consisting of 57 district schools, 3 high schools, (Chestertown, Millington and Galena), and one college (Washington College, Chestertown).

The district schools are about four miles apart, most of them pleasantly, as well as conveniently located. With one exception every school house has modern furniture, (generally Soper's desks) and in only one of fifteen houses I visited did I see the mark of a jack-knife or the scratch of a pencil, though some of the desks had been ten years in service. Some of

the houses are badly in need of paint outside; but I found all that I entered, clean, tidy, and comfortable, and well supplied with maps and black-boards. Some had clocks and cheap globes.

Speaking of the efficiency of the schools as educational instruments, they may be divided into two classes, the *good*, and the *very good*. The latter is of course, the smaller class; and their excellency is mainly due to the individual energy of the teacher. A first-rate teacher under all circumstances makes a first-rate school. Those that I have classed as good owe their efficiency largely to the *system* under which the teachers operate, good text-books, proper equipments, a uniform and well arranged schedule, and above all, close, intelligent and continuous supervision. Without these helps teachers of this class could accomplish little or nothing except to keep school and draw pay. Men of eminence are rare in any profession, not excepting that of the schoolmaster. It is the glory of a well managed school system to be able to accomplish good results by means of agents of average capacity. Men and women of genius find no help, but rather a hindrance, in system. But the twenty-five hundred school teachers in the State are by no means persons of genius. They cannot be supposed to have more than average capacity, and to make this average power capable of producing uniformly good effects is the proper work of a school system; and this work our system has shown itself capable of performing when properly administered.

In Kent County the educational ladder may be said to be complete. The district schools give ample preparation for the high schools; the high schools for the college, and the college for the university. It is much to be desired that the same completeness could be established in every county, so far at least as the high school is concerned. Some counties have no high schools, and some nominal high schools cannot prepare pupils for college.

M. A. N.

AS TRUTH is one and error manifold, no human faculty can foresee the precise mode in which falsehood will be presented by a wily foe; and therefore the grand safe-guard is a knowledge of the truth.—J. W. ALEXANDER.

THE happiness of your life depends upon the quality of your thoughts, therefore guard accordingly, and take care that you entertain no notions unsuitable to virtue and unreasonable to nature.—MARCUS ANTONIUS.

AS LARGE springs send forth their waters without pumping, so your benevolence should seek the poor before the poor seek your benevolence.—SECKER.

BOOK NOTICES.

Our table groans under a load of books. And we groan in sympathy. Is there to be no end of school-books? Oh! for one quiet year of the good old times when there was no Grammar but Lindley Murray or Kirkham, no Arithmetical but Pike or Daboll, no Spelling-book but Comly or Webster, and no Geography at all, to speak of. Have we not better books now? To be sure we have; but are not all the advantages of quality neutralized by excess in quantity? A teacher may stick to one book now if he chooses? That depends. If the book-committee has the selection, he must change four times a year if he is ordered to do so. But even teachers who are their own masters are troubled, perplexed, wearied, worried by this "infinite variety." Hardly has a man after months of reading and balancing and choosing, made up his mind that Brown's Grammar is the one for him, than an enterprising agent presents a new edition of Smith, and on a new survey Smith does seem to have the advantage, and Smith is "introduced." But before the class is half through with Smith, he has determined that the next class shall begin on Jones, who certainly has some peculiar merits not to be found in Smith. Long before the day of trial comes, however, he is flooded with opinions, criticisms, advertisements, recommendations, puffs of Robinson, and Robinson has a trial. We have little doubt that a teacher will do better with the worst text-book in grammar now published (which we suppose is Smith's) if he perseveres with it for several years, than he would do with seven of the best grammars in the market used one year each in succession.

Therefore, it was without anticipating much pleasure, that we opened a brand-new Grammar. *A Complete Scientific Grammar of the English Language*, by Professor Colegrove, President of the West Virginia College, (The Author's Publishing Company, New York); and we trembled when we read in the preface that it was the author's aim "thoroughly to reconstruct the science from its foundation." Alas, why should it need to be so often reconstructed! One of the author's strong points is classification, the chief object of which is, we are told "to facilitate the learning of the forms of words." He makes out thirteen classes of nouns; twenty classes of adjectives; five classes of pronouns; six classes of verbs; twelve classes of adverbs; nine classes of prepositions; seven classes of conjunctions, and twelve classes of interjections; all of which must tend very much to facilitate the learning of the forms of words. Nouns have four modes of inflection, "gender," "number," "case," and "grade." "Grade" is of three species, "Normal," "Diminutive," and "Augmentative." Diminutives are of three kinds, "Terminational," "Patronymics," and "Endearants." There is also a "Double Grade" which is "the formation of both Diminutives and Augmentatives from the same normal stem." Ad-

jectives have three modes of inflection; grade, comparison, and number. "The modes of inflection of verbs are five, called, Tense, Number, Person, Diminution and Frequentation." Sentences are simple, complex, compound, complicate, elementary and prospective. They are also copulative and verbal, active, passive and neuter; affirmative and negative; positive and interrogative; indicative, subjunctive, imperative, infinitive and exclamatory. Sentences are also subjective, predicative and mixed; loose, compact and close. There are normal loose sentences, and reduced loose sentences; also, direct loose sentences, inverted loose sentences, and reversed loose sentences; also single compact sentences, and double compact sentences, and triple compact sentences; also direct compact sentences, inverted compact sentences and reversed compact sentences. We stop for want of breath, and space, and patience, merely remarking that each of the above classes is duly defined, and that we have not exhausted the classification; which ends with "primary complicate sentences," "secondary complicate sentences," and "composite complicate sentences." As an example, the author describes the sentence "*The Farmers horses are fœding in his pasture*," as "a simple, copulative, active, affirmative, positive, indicative sentence." "*Joseph and Harry could not find the oxen*." "This is a complex, subjective, verbal, negative, positive, indicative sentence." "*His refusing to apologise was proof that an insult was intended*." "This sentence is complicate, simple, co-mixed, secondary, copulative, neuter, affirmative, positive, indicative." We join cordially in the hope of the author, "that students may no longer be obliged to waste their time and stultify their intellects in toiling over the miserable trash which has usurped the name of "English Grammar."

Swinton's New Word Analysis, (Iverson, Blakeman, Taylor & Co.) is a praiseworthy effort towards the accomplishment of a very difficult feat—to make the study of Etymology possible and interesting to pupils who know no language but English. We almost think the attempt has been successful—at least if compelled to undertake such a task, we know of no little book that we would sooner take as our guide and helper.

Hudson's "Merchant of Venice", (Ginn & Heath, Boston,) is one of a series of Shakespeares plays by the same author, with introduction and notes, critical and explanatory. The more general introduction of such books into the higher classes of our common schools is "a consumation devoutly to be wished for;" and the teacher who can make Shakespeare intelligible and pleasing to such pupils will be a public benefactor. We have reprinted in this number of THE JOURNAL, some extracts from the general preface to this series, which will be found pleasant and profitable reading.

We are glad to welcome such a book as Professor Tyler's "*Selections from the Greek Lyric Poets.*" Ginn & Heath, Boston. We hope its appearance is a sign of a revival of Greek learning; we are sure it will contribute something towards such a revival. The young student can take in but a small fragment of his author at a time; and being unable afterwards to unite the *disjecta membra*, he has no interest in what he reads further than to make a good recitation. But these Lyric selections are all short; each is complete in itself, and many of them are replete with maxims, epigrams, bursts of patriotism, which captivate the imagination and impress the memory. It is impossible for beginners to feel a liking for a language, separate from its literature; and if the literature meets with no responsive echo in his heart, he soon tires of it. But patriotism, valor and love are themes of universal interest; and when wedded to noble words will always command an audience.

A New volume of Shakespeare's select plays, edited by W. A. Wright and published by MacMillan & Co., London and New York, has just appeared. "*Coriolanus*" is of the same order as Hudson's "*Merchant of Venice*," just noticed. The preface gives a comprehensive analysis of the play, scene by scene, with so much of historical information as is necessary to a proper understanding of it. The notes are critical, explanatory, and illustrative; not more full than the younger classes of readers need, and yet frequently appealing to the acumen of more advanced students.

The "*Grammar School Choir*," by W. S. Tilden, (Oliver Ditson & Co., Boston,) is a larger and more ambitious work. It presupposes some knowledge of singing by note, and omits the usual prefatory and fatiguing exercises. It is intended to meet a special want by presenting music arranged in such a way as to furnish something suitable for any compass or combination of voices usually found. In this attempt the author has met with a fair amount of success, though the writer is bound to admit there is nothing in it suitable to *his* voice.

If school children do not learn to sing, it is not because of any lack of song-books, and good song books. Here is one—*Philip Phelps' Day School Singer*, (J. W. Bond & Co., Baltimore,)—and one of the best of them. If with such help the "little folks" do not learn to sing and come to enjoy their music lessons, it must be the fault of — well, we will not say whose fault, but not the fault of Philip Phelps.

"*Every Day Songs*" by Henry Schœller; (R. W. Carroll & Co., Cincinnati,) is "another of the same," but with larger notes and of course less music in it. The "*School Cantata*," which closes the volume will be found excellent for exhibition purposes.

We know of no better introduction to the story of Milton's poetry than Professor Sprague's "*Milton's Paradise Lost*,"—books I. and II., Ginn & Heath, Boston.. The notes contain everything which a young student needs—and much that we hope very few do need. It can hardly have been necessary to load the notes with information so easily found elsewhere as: "*Mortal*, Latin *mors*, death; *ruin*, Latin *ruere*; *combustion*, Latin *comburere*; *compeers*, Latin *compar*, *com* together, *par* equal." At the same time such questions as the following are left unanswered: "What was the classical conception of *fate*?" "What evidence that Milton had Prometheus in mind in other passages of *Paradise Lost*?" "What dwarfish races exist in the extreme North?" "What in Africa?" "Tallness in leaders was more admired in ancient times than now"—instances? Still we know of no book available for schools that will do as much as this little volume to render Milton intelligible and enjoyable. The "*Lycidus*" annotated in a similar way is bound up in the same volume though not mentioned on the title page. It can probably be bought separately.

Here is a new book—a really new school-book—new in its purpose, and new in its plan. The alternate leaves are blank. How much improved some books would be if every page were blank! The pages that are printed would make the jolly old pedagogue of the olden time look blanker than the pages that are not printed. They are filled with *questions*,—thousands of questions, and not a single answer in the book. Evidently "*A New Method for the Study of English Literature*," (Chicago, S. E. Griggs & Co.) The author, Miss Louise Mærtz, does not believe in cramming her little busy bees with ready-made honey. She sends them into the fields to gather for themselves. They may get less honey in a day than she could cram them with in an hour, but they will get enough, and the exercise will keep them healthy. So to every question Miss Mærtz attaches a reference, directing the pupil to the proper sources of information. This plan presupposes the pupil to have access to a library, or at least to three or four suitable books; an unwarrantable supposition in many cases it may be said, but how can honey be made without flowers?

At least one-half of the boys now going to school in Maryland are farmers sons, and probably one-half of these will be farmers themselves, and yet not one of them know a word about farming, from the day he enters school till the day he leaves it. This is one of our modern notions. It was not Solon's. He advised the Athenians to teach their children "that which they are to practice when they become men." We say, teach them everything else. Teach them the boundaries of Affghanistan, the literature of Constantinople, the length of the Euphrates; teach them to parse, and to analyze; teach them to spell unintelligible words, and to solve unreal puzzles;—anything but what they are to practice when they be-

come men. "*Kedzie's Agricultural Geology*," (Van Antwerp, Bragg & Co., Cincinnati,) is written for the latitude of Kansas; but it contains much that is equally applicable to Maryland, and it would be a sign of returning common sense if such books could obtain a footing in our schools.

"*One Hundred Choice Selections*," No. 17. (P. Garrett & Co., Philadelphia,) supplies another instalment of "pieces" for declamation—some good, and some good for nothing—but well worth the money to those who need such things.

Steiger's Year-Book of Education for 1879, (E. Steiger, New York,) is at hand. This is the second annual supplement to the *Cyclopedia of Education* published in 1877: "A dictionary of information for the use of teachers, school-officers, parents and others." This volume contains recent information on educational matters, part of which has been received as late as May 1879, embracing every subject which is of interest or value to those for whom the work is intended. Price, limp cloth \$1.50; cloth beveled boards \$2.00.

The December "*Popular Science Monthly*" has an excellent invoice. E. B. Tylor, the great English Anthropologist, leads off with an article on "Recent Anthropology," in which he carefully reviews the present state of knowledge on the subject of the Antiquity of man. The most striking article is the paper of Prof. Le Conte on "The Genesis of Sex." The subject of "Ocean Meteorology" is pursued by Lieutenant Lyons, who gives a large amount of information regarding weather and navigation at sea. "First-hand and Second-hand Knowledge," by Dr. W. T. Dalby; a criticism of Spencer's "Data of Ethics," by Prof. Bain; Prof. Marsh's Saratoga address on "History and Methods of Paleontological Discovery;" "The Beginning of Geographical Science," by George A. Jackson, and a curious paper on "Many-toed Horses," are among the other interesting articles contained in this number. D. Appleton & Co., New York. \$5.00 per year. With the MARYLAND SCHOOL JOURNAL, \$5.25 per year.

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PUBLISHER'S DEPARTMENT.

We desire to call the attention of our readers to the advertisement, in this month's Journal, of Littel's Living Age, the best literary weekly published in this country. The Living Age and the "School Journal" will be sent, free of postage, for \$8.00 a year, the price of the Living Age alone. Any one whose "Journal" is already paid for can procure the Living Age by sending us \$7.00.

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DIED at his home, in Morgantown, West Virginia, Prof. J. W. V. Macbeth, A.M., on Sabbath, July 6th, 1879, aged 65 years. Prof. Macbeth was born near Ayr, Scotland, in the year 1814. He graduated with distinguished honors at the University of Glasgow. Afterwards, he studied divinity and entered the ministry of the Presbyterian Church. He came to America about the year 1853, and has since devoted his life to teaching and to literary pursuits. Prof. Macbeth was last connected with the University of West Virginia, where he occupied the chair of Belles-Lettres and Political Economy. Prof. Macbeth left several works, published and in manuscript, which testify to his high literary ability. He leaves a widow, three daughters and two sons. Two of his daughters graduated at the State Normal School and engaged in teaching, though one of them, a few years since, gave up the school room for the home circle, and became the wife of Theo. Luman, Esq., Clerk of the Circuit Court of Allegany County.

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THE PRINCE AMONG MAGAZINES.—*N. Y. Observer.*



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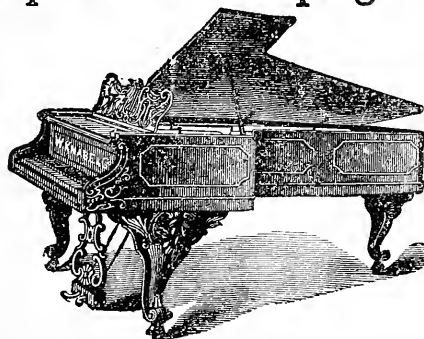
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Vol. VI. January, 1880. No. 5.

THE MARYLAND SCHOOL JOURNAL.

M. A. NEWELL,
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THE
MARYLAND SCHOOL JOURNAL.
DEVOTED TO THE CAUSE OF EDUCATION.

Vol. VI.

JANUARY, 1880.

No. 5.

TECHNICAL EDUCATION.

IF we look at the present state of different countries, it will be obvious that those countries which neglect the higher education of their people have little chance with those which cultivate it. Spain and Ireland may be taken as representatives of the first class; Switzerland, Holland and Scotland, of the second class. Spain at one time stood foremost among industrial nations, for the Jews introduced to it their habits of industry, while the Moors added their knowledge of science and art. But Spain expelled the Jews, and ultimately the Moriscoes; and with them departed the accumulated industrial experience as well as the science of centuries. Education was only tolerated so far as it was compatible with ecclesiastical fears; for when the Duke of St. Simon was the French Ambassador in Spain, he declared it to be a national canon, that science was a crime and ignorance a virtue. After this time science was more tolerated, and the country resumed some prosperity. But in the present century ecclesiastical dominion has again become paramount, and Spain has slid back into obscurity. Formerly, her ship-building was the admiration of the world, her metallurgic arts were the most advanced, and her textile industries were unequalled. But with the decay of

science her industries decayed; and now we have a country washed by two great oceans, with noble harbors, a rich soil and a luxuriant vegetation, with coal, iron, lead, copper, quicksilver and sulphur in profusion, yet among the most backward of nations, because science withers among an uneducated people, and without science nations cannot thrive.

Ireland is another example. Cardinal Cullen, in his evidence before the House of Commons, argued against giving more education to a ploughman than would enable him to follow the plough, or to a blacksmith than would fit him to hammer iron, lest they should get discontented with their lot. And so Irish schools proceed no further than to enable men to read the seditious papers which abound in Ireland, while the reward of England for pouring out her treasures on popular education in that country is that the Irish turn round upon her like Caliban in "The Tempest," and exclaim,—

"You taught me language; and my profit on't
Is, I know how to curse!"

This is natural, for there are more Irish than can be absorbed by the agriculture of the country, and this, except in Ulster, is the staple industry of Ireland. Had England insisted upon a good secondary education for the Irish people, their many admirable qualities and natural love for learning would have fostered industry and increased contentment among the population. Agriculture would then cease to be the only occupation kept before the eyes of the people of Ireland; while new thoughts, new ambitious, and new occupations would raise the population of Ireland as certainly, if not so rapidly, as similar causes have raised Scotland within the last century.

Scotland is a poor country, restricted in area, barren in soil, swept by the bleak northeast wind, and possessing in only one small corner the elements of mineral wealth. But John Knox insisted that her primary and university education should be general, and at the same time that a certain portion of it should be directed "*to those studies which the people intend chiefly to*

pursue for the profit of the commonwealth." Under this system all boys "of pregnant parts" were diligently sought out in every parish, and sent to the university at the cost of the Church. Every Scotch peasant hoped, like the father of Dominic Sampson, to live to see his son "wag his head in the pulpit," or enter into a more congenial profession. Under this system, to which a great stimulus has been given in the last ten years, —though now by private munificence, and no longer through the Church,—Scotland is a prosperous manufacturing country, and her sons who emigrate to the United States and Canada acquire positions of trust and profit.

Switzerland is a still more marked instance of the effect of a superior education. Her primary schools are graded with good secondary schools for scientific education, and these lead to remarkable technical institutions, which dwarf the universities by the completeness of their organization. And so Switzerland has become a prosperous and happy country. Yet if any country appears by nature unfit for manufactures, it is surely Switzerland. Cut off from the rest of Europe by frowning mountains, many of them covered by eternal snow; having no sea-coast, and removed, therefore, from all the fruits of maritime enterprise; having no coal or other sources of mineral wealth—Switzerland might have degenerated into a brave semi-civilized nation like Montenegro. Instead of that, she proudly competes with all Europe and America in industries for which she has to purchase from them the raw materials, and even the coal—the source of power—necessary to convert them into utilities.

Holland compels every town, with ten thousand inhabitants, to erect technical schools for the people. So we find this country largely productive, though it is chiefly formed out of the debris of the German mountains, and contains no coal except in a small field around Lemberg. Out of its dismal flats and dreary swamps it exports products of the annual value

of sixty millions of dollars. This is no inconsiderable achievement for a small kingdom of one-tenth the area and one-eighth the population of the United Kingdom. The secret of her success lies in the liberality of her conception of public education, although it is still defective in having no compulsory law.

I need not go further in illustrations of the effects arising from a general and specific industrial education for the people. The United States have recognized the need, and carried it in many respects further than other nations. England and Scotland are rapidly placing primary education in as effective a condition as that of the United States. The graded education, however, is not so good as that in New England, with which I am best acquainted; but the increasing facilities for the systematic instruction of the people in art and science is, I think, becoming greater in England than it is in this country.

I, who love America, and who spend part of each year among its hospitable people, desire to see this main condition for industrial competition developing in one country as much as in the other. England requires a more rapid development of technical education than the United States, because she is open to the competition of all the world in regard to her industries. But the United States, in my opinion, will also obtain immense advantage when such education becomes general throughout her several States, because it will enable her more quickly to throw off those protective duties which retard the upward progress of this great nation. By the time she does so, England will again be much advanced in her power to meet the increasing competition of the world; and the two great Anglo-Saxon nations, which have done so much to promote civilization, will still hold their own respective positions in the history of the world, by the aid of a free, enlightened, and industrious population.—HON. LYON PLAYFAIR, *in the International Review*, for December.

WALTER SMITH ON DRAWING.

1. All children who can be taught to read, write and cipher, can be taught to draw.

2. Drawing, by the law of Massachusetts is required to be taught to every child as an element of general education, like reading, writing and arithmetic.

3. As an elementary subject, it should be taught by the regular teachers, and not by special instructors.

4. The true function of drawing, in general education, is to develop accuracy and to exercise the imagination, thereby tending to produce a love of order, and to nourish originality.

5. Educationally, drawing should be regarded as a means for the study of other subjects, such as geography, history, mechanics, design. In general education, it is to be considered as an implement, not as an ornament.

6. The practice of drawing is necessary to the possession of taste and skill in industry, and is, therefore, the common element of education for enjoyment of the beautiful, and for a profitable, practical life.

7. In the primary, grammar and high schools, drawing is elementary and general; in the normal and evening schools, advanced and special; for teaching purposes in the first, and for skilled industry in the second.

8. Good industrial art includes the scientific, as well as the artistic element; science securing the necessity of true and permanent workmanship, art contributing the quality of attractiveness and beauty. The study of practical art by drawing should, therefore, comprehend the exactness of science by the use of instruments, as in geometrical drawing and designing; and the acquisition of knowledge of the beautiful, and manual skill in expression, by free-hand drawing of historical masterpieces of art and choice natural forms.

9. From this study so undertaken, we may expect a more systematic knowledge of the physical world, in history, and

at the present time ; for, through the sensitiveness to appreciation by the eye, and power of expression by the hand, of its phenomena, may come a knowledge of nature's laws, a love of the fit and the beautiful, and that ability to combine these in our own works, which alone produces the highest form of art—originality.

10. Drawing may now take its legal place in the public schools as an element of, and, not as before, a specialty in, education ; at as little cost as any other equally useful branch of instruction, with the prospect that, at a future time, as many persons will be able to draw well as can read or write well, and as large a proportion be able to design well as to produce a good English composition.—*National Journal of Education*.

FIRST LESSONS IN AGRICULTURE.

It has long been a matter of regret with experienced educators and philosophical thinkers on educational subjects, that so much of what is taught in schools seems to lie outside of the practical demands of common life. Teachers believe, in a vague sort of way, that the ordinary school curriculum is a good preparation for active life ; but pupils find it hard to recognize the adaptation, and parents often make an emphatic, and sometimes an unreasonable protest against the technical scholastic training to which their children are subjected. It is true that the exercise of the mind on any subject has a tendency to develop the mental powers, but it is no less true that some subjects are better calculated than others to call forth the spontaneous and pleasurable activity of the faculties.

The following "Lessons on Agriculture" are given, in the hope that some teachers will make them the subject of a half-hour's talk on Friday afternoons. The lesson may be read and explained ; the older scholars may take notes of the most

important points, and the school may be examined next Friday on the lesson of the preceding week. The words printed in italics will suggest the proper questions on each paragraph.

The "Lessons" are taken, with considerable abbreviation, from a little primer of agriculture, by Henry Tanner, F.C.S., and published by MacMillan & Company.

LESSON I.

1. *The cultivation of the soil* is commonly known as *Agriculture*.

2. The surface of the land consists of earthy matter, more or less finely broken, and this is called *the soil*. This may be termed the raw material which the farmer has to manufacture into products suitable for food and clothing.

3. In some cases the soil is very shallow, and if you dig a hole in the ground you will soon reach the hard rock. In other instances there is a very considerable depth of earth, and thus we have both *shallow* and *deep soils*.

4. When a hole is dug into a deep soil—especially if it be what is known as a clay soil—we observe a marked change in the general appearance of the soil some little distance below the surface. The portion that so differs from the surface soil is called the *sub-soil*, or under-soil. In speaking of the upper or surface soil we usually call it the soil, and that portion which lies below it is known as the subsoil.

5. The question naturally arises, how is it that the land is thus covered by this earthy matter, and *whence did the soil come?* Soils are produced by the breaking up or crumbling of rocks.

6. There are *three natural agencies* which thus turn rocks into soil, and thereby produce for the farmer the earth from which he makes his crops to grow—water, air and frost. If water falls upon or soaks into a piece of rock, it has a tendency to dissolve some portion of the stone, and then pass away with its spoil as soon as other water is ready to take its place.

Thus, rocks are softened by *water* and some portions dissolved out of them.

7. Water also acts powerfully because it contains some *atmospheric air* in it. Rain-water in falling through the air takes in some portion of the air through which it passes, and retains it. This air is a mixture of two gases—oxygen and nitrogen—with a small proportion of carbonic acid gas.

8. When water carries into a rock the oxygen which it contains, this gas has a tendency to form chemical combinations with some of the materials in the rock. When carbonic acid is also present it helps to dissolve in the water, portions of the rock which would not have been soluble in pure water. Thus the water with its *associated gases* dissolves out certain portions of the rock, and thereby the rock has holes made in it, which gradually increase in size, and thus expose a larger surface to be subsequently acted upon by further supplies of water.

9. The third agency is *frost*. When the surface of a rock has been penetrated by water, and the temperature of the air falls below the freezing point, the water becomes frozen. As water freezes it gets bigger, and the particles of a wet rock are pushed apart so as to make room for the water which is freezing. When the frost has ceased and a thaw takes place, portions of the surface, being thereby released from the solid bands of ice, are thrown off from the rock. The extent to which this takes place depends in a great measure upon the size of the holes which the water and gases may have made in the rock. Sometimes the openings scarcely penetrate below the surface, and in such cases the surface of the rock only is affected; at other times large masses of rock are thrown off.

10. These three agents wear away our hardest rocks, and thus they are broken down and pulverized into soil. Softer rocks are of course acted upon more rapidly than hard rocks, but every rocky surface is thus made to yield its contribution to the soil. The lower forms of vegetation then establish themselves on this newly-made soil, and their rootlets pene-

trate and obtain their food from it. In due course these plants die, and add decaying matter to the soil, which thereby becomes fitted for the support of higher forms of vegetation.

11. If soils so formed were allowed to remain where they were first produced, we should find very little difference between those soils and the rocks from which they were formed, except so far as regards their being in a more broken condition. But when soils have thus been formed from rocks, they have frequently been washed away and mixed with soils produced from other rocks. Soils of this character are often found in our valleys, and are distinguished as *alluvial soils*. Thus our soils differ very much in character and composition, according to the varying character of the rocks from which they may have been produced, and also according as they may have been more or less intermixed with other soils.

12. There are some soils which are not produced by these means, such as *Peaty Soils*. These consist of vegetable matter which has grown and decayed, generally in the place where these soils are found.

13. These peaty soils, therefore, differ essentially from the soils which have been produced by the pulverization or powdering of rocks. Peat soils consist almost entirely of vegetable matter, which often reaches as much as 97 per cent., and they contain very little mineral matter; whilst soils produced from rocks are chiefly composed of mineral matter, and have only a small proportion of vegetable matter.

14. We classify soils according to their texture and condition, as well as by their composition. The character is indicated by a *mechanical* analysis, and the composition is determined by *chemical* analysis. By these means we can inform ourselves with great accuracy as to the composition and character of any soil, and establish a regular classification.

15. The *mechanical analysis* of soils is largely based upon the proportions of clay and sand which they contain. The term *Clay* is applied to the finer portions of the mineral

matter of the soil. These portions have by various means become so reduced in size that they are perfectly soft to the touch, and when pressed in the hand retain the form into which they may be moulded or pressed. The clay which is used for making bricks and pottery is familiar to every one. It is soft, and easily moulded in the hand, and when water is placed in any hollow on its surface the water does not readily soak away.

16. *Sand* is just the reverse. It really consists of very minute stones, and when pressed in the hand it is gritty and hard to the touch. If any attempt be made to mould it into any particular shape, it does not keep the form so given to it. If a hollow be made on the surface, and water be poured into it, the water quickly passes through it. In the sand upon the seashore we have a familiar example of the sand in soils.

17. These two portions of the soil are strikingly distinct, and they are therefore used as the foundation of a system upon which we can base a general *classification of soils*. The manner in which the quantity of clay and sand in a soil is determined is exceedingly simple. When a sample of soil is to be so examined, measures are taken to separate the stones and portions of rock which are present. These are not a part of the true soil; they are simply rock or stone mixed with the soil. The soil upon which the farmer has to rely for his crops is the fine earthy matter, and not the stones which are mixed with it. It would, however, be a serious error to consider these stones and pieces of rock as useless to the farmer. These have their duties to perform, as we shall hereafter see; but, for the present purpose, they must be distinguished from the soil which has to be examined.

18. To obtain the fine earthy matter from a soil, a small sieve should be used, and the coarser portions thereby separated and carefully dried. Two hundred grains of the sifted soil may then be thoroughly mixed with about half a pint of water, and well shaken for some few minutes. As soon as

this has been accomplished, the vessel may be allowed to remain quiet for a short time, during which the sand falls to the bottom. Whilst the fine particles of clay are still floating in the water, it should be quickly poured into another vessel, leaving the sand behind in the first. If the clay be not entirely removed in the first attempt, the sand may be again washed, and any clay poured into the vessel containing that first removed. You have thus made a separation of the soil, which will enable you to determine its character, and to classify it accordingly.

19. The sand and clay are afterwards carefully dried and weighed. If you found the weight of sand equal to the weight of clay, this would represent, in other words, 50 per cent. of each. A soil of this composition is known as a *Loam*.

It is necessary, however, to arrange for other proportions of clay and sand, and these are distinguished as *Sandy loams* and *Clay loams*. They take intermediate position between the loam and the two primary soils, sand and clay.

<i>Name of Soil.</i>	<i>Sand per cent.</i>	<i>Clay per cent.</i>
Sand.....	100	—
Sandy Loam.....	75	25
Loam.....	50	50
Clay Loam.....	25	75
Clay.....	—	100

20. If, in the experiment indicated above, the soil had contained 25 per cent. of clay and 75 per cent. of sand, it would then have been classified as a sandy loam. If there had been only 25 per cent. of sand, and the clay had proved to be 75 per cent., the soil would then have been classified as a clay loam. But soils will rarely yield exactly these results, and each should therefore be *classified with that to which its composition most nearly approaches*. There is, in fact, a range of $12\frac{1}{2}$ per cent. more and $12\frac{1}{2}$ per cent. less than the figures here given, within which to allow for these variations. If, for example a soil contains 10 per cent. of sand and the rest is clay,

we should call it a clay soil. If, again, a soil contained 40 per cent. of sand and 60 per cent. of clay, it would be a loam.

21. In addition to this physical analysis of the soil we have to consider* the several ingredients of which it is composed, and these are determined by *chemical analysis*. Chemistry reveals to us the fact that soils contain a large number of different substances, and that the proportion in which they exist is very variable.

22. The soil consists of *two* distinct classes of bodies, viz., those which are mineral or *inorganic* matters, and those which are *organic* substances. When a soil is exposed to the action of fire these two groups are separated, the organic matter is burnt off, but the inorganic matter remains.

23. Of the *Inorganic matters* found in soils, *Silica* or silicic acid first claims our attention. This body forms a very large proportion of sandstone, and it exists abundantly in granite and other crystalline rocks. When combined with alkalies or with an alkaline earth, it forms silicates, a series of bodies of the utmost importance in reference to the fertility of the land. Clay is chiefly composed of *silicate of alumina*, that is to say, silica combined with alumina. The fertility of clay, however, is very largely dependent upon the presence of a peculiar form of silicate of alumina, which demands special notice.

24. There is a class of bodies which are termed *double silicates*. These are silicates of alumina in which part of the alumina has been replaced by an equivalent quantity of some other substance, such as lime, soda, potash or ammonia. Thus we have these double silicates in soils as silicate of alumina and lime, as silicate of alumina and soda, as silicate of alumina and potash, or as silicate of alumina and ammonia.

The *Alumina* also possesses in one respect an exceptional character. Whilst it is most valuable in assisting other bodies to enter into the plants growing upon the land, it appears to act rather as an "out-of-door servant," carefully avoiding going into the plant.

25. *Phosphoric acid* is one of the most important substances found in the soil. Its influence upon the fertility of the land is very great, for every cultivated plant requires a supply for its successful growth. It is never found in the soil in large proportions : in our richest soils it barely reaches .5 per cent., that is, in 100 lbs. of soil there is rarely as much as $\frac{1}{2}$ lb. of phosphoric acid.

26. *Inorganic matters in soils.*—Silica, phosphoric acid, carbonic acid, sulphuric acid, chlorine, alumina, lime, ammonia, potash, soda, magnesia, oxide of iron.

27. In addition to the inorganic matters of soils we have a second group of substances existing in them as *organic* matter. This matter consists of substances which may have grown under the influence either of vegetable or animal life, and have consequently been organized as part of some living plant or animal. The process of decay in the soil brings these vegetable or animal remains into such condition that they again become available for yielding nourishment to vegetation. Organic matter forms a series of substances which practically yield to the soil—

Carbon, with the elements of water (*Oxygen* and *Hydrogen*) in various forms of combination ; also *Ammonia* and other nitrogenous matters.

28. The inorganic and organic substances in the soil constitute a very large number of bodies, but by the aid of chemical analysis the composition of soils can be accurately determined. The mechanical analysis enables us to determine whether a soil is sand, sandy loam, loam, clay loam, or clay soil ; and the chemical analysis enables us to determine whether they are calcareous or peaty. If there should be any large quantity of stone, gravel, or rock, or other exceptional matter mixed with the soil, these would add an additional character ; as for example, a calcareous loam with much or little stone, gravel, or rock ; or a sand with a large quantity of iron ; or a loam with much organic matter, &c., &c. The term *marl* has been proposed for soils which contain from 5 to 20 per cent. of lime.

MISTAKES IN SCHOOL MANAGEMENT.

BY JAMES HUGHES,

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It is a mistake to confound "securing order" with "maintaining order." Many teachers forget, when taking charge of a new class, that they are dealing with strangers, on whose sympathy and affection they have no claim. They often lose control of their pupils on the first day by practising the very principles which are of highest service in securing the best discipline. They appeal to instincts which are slumbering, and to motives which, so far as they are concerned, have no existence. Pupils are at school on the opening day to study the "new teacher," not their lessons, and the more incomprehensible and non-committal he is the more they will respect him. Like their seniors, they will regard mysterious silence as profundity, and a self-contained manner as indicative of great reserve power. No rational teacher should expect to win the love of his pupils at first sight. During the first few days his great aim should be to show them by his *action* and *manner*, not by *words*, that he understands himself, his pupils, and their relations to each other. To baffle their curiosity in regard to himself is the first step towards securing their respect. Beyond this only three things are absolutely necessary during the first week :

1. He must show that he can see everybody at all times, and that it is impossible to do wrong without being detected.
2. He must be decided in awarding punishment for an intentional offence. A severe whipping promptly and coolly given on the first day may assist materially in doing away with corporal punishment.
3. He must prove that he is master of the subjects he has to teach.

A lady once subdued a rebellious pupil by offering him her cane with the request that he would whip her. She had pre-

viously shown him and the whole class in a clear and feeling manner that he was guilty of a serious offence for which some one must be punished. At the right moment she surprised him with her strange request, and completely overpowered him. This was natural, because her pupils were young, and she had gained their affection by a long course of kindness. The story got into the papers, and an ardent youth, about to take charge of a class of grown-up boys, determined to adopt the young lady's plan. He opened school on the first morning with a fervid address, full of what boys call "taffy," and calmly waited for the hour to arrive when by a single exhibition of his generosity he would gain permanent sway over their grateful hearts. He was confident that his address must have made an impression, and that the noble boys would appreciate his self-sacrificing spirit. The hour at length arrived, and with due ceremony he called the culprit before him, spoke to him in most feeling terms, showed the necessity of punishment for the offence, stated that rather than punish a "dear pupil" he would submit to be punished himself, and finally presented the delinquent with a bundle of rods with the request that he would select therefrom the largest and whip his "dear teacher." He turned his back expecting to hear cries of penitence, but instead he was astounded by shouts of encouragement to the obedient pupil, who had faithfully carried out instructions, and was now wielding the largest rod with judgment and power, in which invigorating exercise he was quickly joined by as many pupils as could get rods from the bundle. Those who could not be so accommodated pelted him with every available missile, and finally threw him out after emptying the ink bottles on his head.

Kindness and affection are the strongest elements of a teacher's power, but they need a stable foundation to rest upon.

It is a mistake to make too many rules. Some teachers make so many rules that they cannot remember them themselves. Their pupils forget them too, and violate them without intending any wrong. If a great many rules are made,

some of them must be of minor importance, and the pupils and parents too will lose respect for the more important, through their contempt for the trivial. Law loses its influence when it becomes whimsical.

The breaking of a law should be a most serious offence. Children will not be very good citizens, if they regard the violation of laws as a trifling matter. They cannot avoid coming to this conclusion, if a teacher has so many rules that he forgets to punish for neglecting them ; or if they are of so unimportant a character as not to command the respect of the pupils.

There should be few cast-iron rules beginning with "Thou shalt," or "Thou shalt not." The rules should state general principles, and each one should cover a whole class of specific acts.

Rules in detail should not be formulated in a code either written or printed.

No rule should be issued until some wrong-doing makes it necessary. The very prohibition may suggest the wrong course to the pupils.

Pupils should learn rules, *as they should learn everything else*, by experiencing the necessity for them, and by putting them in practice as they learn them. The rules that will be best learned and most consistently obeyed, are those that are not spoken or written or printed, but *acted* by the pupils under the guidance of the wise teacher. The pupils should have the reasons for rules explained to them so far as to enable them to see their justness ; indeed judicious teachers may allow their scholars to assist them in framing rules.

While the teacher should place as few restraining rules as possible on his pupils, he must not neglect to define clearly their duties towards each other and to the school, nor to explain fully the nature of the offences which they commit.

It is a mistake to be demonstrative in maintaining discipline. Some machines make a perpetual jarring noise while running. So some schools are disciplined in such a way as to

make them really disorderly. Teachers are often disorderly in attempting to secure order. They may succeed in obtaining a kind of discipline, but they lose much valuable time in getting it; and when secured it lacks many of the beneficial influences of good discipline in forming the characters of the pupils. Visitors at schools will frequently hear the teachers cannonading their pupils with such orders as these: "Take down your hand, sir;" "Turn around in your seat, James;" "Sit up, Mary;" "Attention, Susan;" &c. These are *commands*, and the wise teacher will never even make a *request*, when a *suggestion* will accomplish his purpose. There is one fact always noticeable in schools in which the teacher has to resort continually to the above method of controlling his class. His work is never done. The supply of disorder never runs out. In fact he does not notice and check in most cases one-half the wrongdoing that goes on, and at its best the order of the pupils is only indifferent. Even if the best of order on the part of the class could be secured by such means, the disorder of the teacher would neutralize its good effects.

There are some classes always in order, whose teachers do not *appear* to be controlling them at all. The teacher is teaching and the pupils attending in a quiet and respectful manner, when the visitor enters, and he leaves after a stay of a couple of hours without having *heard* a single child named in connection with the violation of a rule of any kind. The teacher was controlling the class, but neither class nor visitor was painfully conscious of the fact.

What causes the difference between the two classes? Is the noisy, restless, forgetful class to be blamed for its delinquencies? Certainly not. The teacher is responsible in every sense. Let the teachers exchange classes, and after a couple of months the classes will have altered their characteristics. One teacher strives for order merely for its own sake, the other maintains discipline that he may teach. One talks, preaches, and scolds about order, and demands it with threats of "impositions" or punishments in case of refusal or neglect

by the pupils; the other secures "the silent co-operation of natural laws, by good organization, by careful forethought, and by quiet self-control."

It may be said by some, that the power of governing without *apparent* effort is a natural gift, possessed by few, and beyond the acquisition of those not so blest by nature. Undoubtedly some possess this power to a greater extent than others, but all may learn the principles that underlie good government; and no one should presume to teach, until he is able to practise those which are essential.

The methods of *securing* order on first taking charge of a class may vary, as they will depend to a considerable extent on circumstances, but good discipline can only be *maintained* by the most careful attention to the physical comfort, the instincts, and the mental characteristics of the children.

It is a mistake to speak in too high a key. Probably no other error increases the labor of the teacher and the disorder of the class to so great an extent as this. Children soon cease to attend to a teacher with a loud voice pitched on a high key. It is not surprising that they do so. A loud voice soon becomes monotonous, and loses its influence in securing attention and order. It has, indeed, a positively injurious influence on a class in two respects:

1. It induces a corresponding loudness and harshness of tone on the part of the pupils, and leads them to speak and read in a forced, unnatural manner. In this way their voices lose all their sweetness and half their influence. "Loudness," says Emerson, "is always rude; quietness always genteel."

2. It produces an irritating effect on the nervous systems of children which prevents their being quiet and attentive.

The voice should be pitched rather *below* than *above* the natural key, and used with only *moderate* force in the school-room. It is much more impressive than a high, loud voice, and infinitely more effective in securing good discipline. Children will learn much more rapidly, too, if the teacher speaks in a quiet conversational tone.

It must be remembered, however, that weakness of voice must not be confounded with good modulation. Weakness of voice indicates some corresponding weakness in body or character. Proper modulation, on the contrary, conveys the impression that the speaker thoroughly understands himself and his surroundings, and has a large amount of reserve force ready for any emergency. *Decision* and *sternness* are not synonymous.

It is a mistake to try to force children to sit still even for half an hour in the same position. It is right to insist that all the pupils shall sit in a uniform position while engaged at the same lesson. It is wrong even to allow them to sit for a minute in *ungraceful* or *unhealthful* positions. The teacher cannot be too exacting in these particulars, but the same position should not be continued too long. This is especially true in the case of little children, whose bones are not hardened. The muscles will weary of sustaining the weight of the body in any position too long, and the weight being thrown on the flexible bones will bend them out of their proper shape.

The judicious teacher will not attempt to *restrain* the restlessness of junior children, but will give it a natural outlet. There is no other so good as light calisthenic exercises, accompanied by singing. These are exceedingly interesting to the pupils, and give the needed exercise and change to the muscles wearied in one position. If teachers would give their pupils two minutes restful exercise between each lesson, or at the close of each hour, the pupils would make more rapid progress in their studies, and the teacher's work in preserving order would be greatly lessened. "In the majority of cases they break artificial rules in obedience to powerful instincts, which the teacher has failed to press into service. They are largely under the influence of the instinct of activity, and unless some safe provision be made for satisfying this instinct, they will be irresistibly impelled to satisfy it in ways of their own. They will fidget when they are expected to

keep still; they will grow weary of being treated as mere passive reservoirs into which knowledge is to be perpetually pumped, and will seek occupations, mental or bodily, for themselves; and in a variety of ways they will disobey the teacher who persists in this unwise defiance of natural laws. It is absurd to blame them for their disobedience. They cannot help it. They did not make themselves, and the laws of their being are only partially under their control."

It is a mistake to allow pupils to play in the school-room. There are many stormy days, when no reasonable teacher would compel his pupils to go out at recess. Instead of doing so, it is the custom in many schools to allow the pupils to have their recess and play in the school-room. It is desirable that a recess should be given for relaxation from study. The hygienic laws relating to both mind and body demand frequent rests from labor. If these were more frequent in schools, and of shorter duration, there would be more work, less scolding, and better order. Relaxation and unrestrained play are not synonymous, however, nor is the one the natural consequence of the other. If children play as they choose in a school-room they are certain to make too much noise, and endanger the safety of desks and other school property. The worst effect of such a license is the loss of proper feeling of respect for the school-room. While children should not regard the school-room as a place of solitary confinement or look upon the teacher with dread, they should feel that there are proprieties of conduct and manner inseparably connected with entering the outer door of a school building. They should never be allowed to play even in the halls of a school-house. They may be allowed to converse, or even to move around the room in a quiet and regular manner. There is no harm, for instance, in pupils of the same sex walking in couples around the outside aisles during the recess, provided they all walk in procession in the same direction, and with a slow, measured step. Pupils may very properly be taught to march by the teacher at these times, or they may perform calisthenic exercises in time with singing. Promiscuous playing around

the school-room should be prohibited also on the part of those pupils who wish to remain in at noon, or who arrive too early in the morning. It is best, if possible, to have assembly-rooms in the basement of the building, but if these cannot be secured one room should be set apart for a lunch or assembly-room. A teacher should always have charge of it, and pupils should understand clearly that *good behaviour* is the one condition on which they are allowed to remain in it.

It is a mistake to give an order without having it obeyed by all to whom it is given. A great deal of disorder exists in some schools, because the teacher while changing exercises, or dismissing his class, does not wait to have one order obeyed before giving another. Whether the signals be given by word or mouth, by numbers, by touching a bell, or otherwise, every pupil should have fully completed the motion indicated by "one" before "two" is given. If any other course be adopted, confusion and disorder are inevitable, and the pupils learn to pay little attention to the teacher's commands.

Obedience to an order and submission to a rule may be quite different. The one should be *prompt* and *decided*, the other should be *intelligent* and *voluntary*.

It is a mistake to treat pupils as though they were anxious to violate the rules of the school. If a teacher does not respect his pupils they will not respect him. Confidence is necessary on the part of both teacher and pupils. A threat implies that the teacher does not trust his pupils, and prevents the class having sympathy with the teacher. "It is better to assume that your pupils will be eager to carry out your wishes, and so impose upon them the obligation of honor, than to take it for granted that the only motive which will deter them from disregarding your wishes will be the fear of a penalty." Blind confidence must, however, be distinguished from honest trust in those who have not proved unworthy.

It is a mistake to whip pupils in a merely formal manner. Some teachers hold that the disgrace of receiving punishment constitutes its chief restraining power. This is a grievous error. If the opinion were a correct one it would be one of

the strongest reasons against corporal punishment. It is certainly not the teacher's aim to bring disgrace on his pupils. Boys laugh at the credulity of a master, who takes it for granted that they feel intensely humiliated by a whipping. Whip rarely, but severely. Whip only for serious or repeated offences, but let the whipping be of such a character that it will not need to be repeated often.

It is a mistake to ridicule a pupil. It is wrong to do so for bad conduct, neglect of lessons, or any breach of school discipline. The pupil so treated loses to a certain extent the respect of his classmates, and what is of more consequence to himself, he frequently sinks in his own estimation. Sarcasm inflicts a poisoned wound which does not heal. No personal or family weakness or peculiarity ought to be publicly referred to by the teacher. Hon. Mr. Wickersham, in his masterly work on School Economy, says: "Sarcastic remarks, or such names as numskull, blockhead, dunce, &c., &c., do not become a teacher in speaking either to or of his pupils." Do not make a pupil lose his own self-respect, or expose him to contemptuous remarks by his companions. To ridicule a feeble attempt, may prevent a stronger effort.

It is a mistake to punish by pulling a child's ears, slapping his cheeks, &c., &c. Punishment should subdue. The horrible idea that the chief object of punishment is to cause pain is not accepted by modern teachers. The punishments referred to above always cause rebellious feelings, and nothing but the comparative weakness of the pupil ever prevents his prompt resentment of such an indignity by the personal chastisement of the teacher. Such punishments are improper:

1. Because they indicate haste, bad temper and inhumanity on the part of the teacher.

2. Because they are inflicted without any previous explanation of their necessity and justness to the pupils. Explanations should precede punishment.

No teacher should ever torture his pupils by pinchings, &c., or by compelling them to keep the body long in unnatural positions.—*Canada School Journal.*

FIRST LESSONS IN BOTANY.

XIV.—GRASSES.—Continued.

Wheat, Oats and Corn.

T.—In our last lesson we studied one of the simplest forms of grasses—the common timothy (*Phleum pratense*). Figure 1 represents one spikelet of a head of timothy, which we found to consist of a pair of glumes on the outside, next a pair of pales, then a single naked flower with three stamens and an ovary having two styles with feathery stigmas.



FIGURE 1.

Let us compare the flowers of this wheat with that of the timothy. But first tell me how we will know when it is in bloom?

P.—I never saw it in bloom, but suppose that the anthers will project, as they did in the timothy when it was in bloom.

T.—Yes, the flowers of the wheat are even more modest than those of the timothy, and throw out less conspicuous anthers; this, I presume, is why you never noticed them. The time at which we should look for these flowers varies with the kind of wheat and the locality in which it grows, but most of them will be in bloom in June. Here are some that I have collected for us to examine. Are these spikes (or heads, as they are often called) like those of the timothy?

P.—No, they are four-sided, while those of the timothy were cylindrical.

T.—Notice how the spikelets are attached to the rachis, and pull one off.

P.—I don't know how many of these parts form one spikelet.

T.—All that are attached to the rachis at the same point form a single spikelet.

P.—Then the spikelets are attached alternately, to opposite sides of the rachis.

T.—Do you see how the rachis bends and throws out a little projection at each point where the spikelet is attached, as if to make room for it? Examine one of these spikelets; what shall we call this outer pair of scales which enclose all of the other parts.

P.—We called the outer pair, in the timothy, glumes; but they were very different from these in shape.

T.—These are different in shape, but occupy the same relative position, and therefore are called *glumes*. What do you find inside?

P.—There are so many parts that I can't distinguish them, except that there are several stamens, and stigmas, and scales.

T.—If you are careful, you can separate these into three or four groups; and (as in Fig. 2) you will find that each is surrounded by two pales—an outer (3), and an inner (4). Pull off the outer pale of one of these groups; how does the inner pale differ from it?



FIGURE 2.

P.—The inner pale wraps around the parts of the flower more than the outer did, and does not end in so sharp a point.

T.—The outer pale often extends into a long point and forms what is called the *beard* of bearded

wheat. Now pull the inner pale off very carefully and notice two very small scales at the bottom of the ovary. Fig. 2-(5). They are called *lodicules* and are really the undeveloped perianth or vestiges of the calyx and corolla; for the pales and glumes you know are only bracts. Describe the other parts inside these pales.

P.—There are three stamens with versatile anthers and an ovary which is a caryopsis with two styles and feathery stigmas, (6, 7 and 8).

T.—Notice the little down on the ovary at the base of the styles; this remains on the grains of wheat even after it is thrashed. If you will refer again to Fig. 2 you will see that you have there represented at 1 and 2 the glumes of the whole spikelet, then the parts of one of the inclosed flowers. How many flowers have you in your spikelet?

P.—Mine has four, but one of them is very small.

T.—You will find them varying in the number of flowers from two to five (with the upper ones generally abortive), and also in the size of the ripe ovaries, since very much depends upon the soil in which they are grown. The number of spikelets in each spike also varies, for the same reason. Now to recapitulate: The flowers of wheat grow in a four-sided spike, the spikelets being attached alternately on opposite sides of the rachis; each spikelet has two glumes, and each flower an outer and an inner palet, two lodicules, three stamens and two plumous styles. Here are some oats. Let us compare this plant with the wheat and timothy. Do these grow in the same kind of bunches that the timothy or wheat did?

P.—No, the spikelets are separated and are on branches of the rachis.

T.—This form of inflorescence is called a panicle, but each group is still referred to as a spikelet. Notice how many flowers there are in each spikelet.

P.—There are two.

T.—Very often you will find but one perfect flower and the other will be sterile. I must call your attention to one other form before we leave the grasses, the one represented by our common Indian corn plant. It bears two kinds of flowers. The staminate flowers grow in a terminal panicle of racemes,

with two flowered spikelets and form what is known as the *tassel*, while the pistillate flowers grow in an auxillary spike, (called the *ear*) and are partly imbedded in the rachis, or cob. The bracts forming its spathe are called the husks, and the long filiform styles form the *silk*. The kernels are in 8, 10, 12, or some even number of rows. We have not time or I would like to go over the other parts of the plant with you. Gather as many different specimens of grasses as you can, and by comparing them with those we have already examined, determine their peculiarities. The Latin name for our common wheat is *Triticum vulgare*, that for oats is *Avena sativa*, and that for Indian corn is *Zea Mays*.

APPLICATION FOR A SCHOOL CERTIFICATE.

[The following is a verbatim copy of an application for a certificate, received by a County School Superintendent, in a neighboring State; all names being omitted:]

Sept. the 11th, 1877.

SIR this is from a Collard School teacher that has promas a School in ——— & being inform by Mr. ——— if I know his name correctly that the County Supt live in ——— & also staden that if I could obtain licens that he would imploy me that the parrents of schools so willins has given me your Direction how come to you he also stated to me that he did not know but it may be that I mite obtain licins by writin & set a few Rules in Arethmetic I would rether come but I could not well come having been much Cick & spent shart of money at present you will please & did not know that you live so far Sir I has been a instructor of School this 4 Sesions one in ——— passing first Grad Under standing Daves every near all So you can Judge my Knowledge of outhor book Sir if you cant complie with my request you will please write so I may know what to depend on a soon as practaboul I has instructed

School in ——— County & never was turn off by any Supt that I appeared before please write soon Directid to ——— please see outhere side a few Rules you will see that there were not drawn from Arithmetic but wark from the brains. Respectfull susmitted

[Here follow some examples in “multipliiing, subtract, division, addision and fraction” with the comment—“my knowing is that fraction in it lowis turms is always less.”]

Sir I see no mead of working any more I can due all the arethmetic Rules Some times I get bortherd a little

I myself came out a every good school a Small Simnatary Sir it would be a gate oblighin if you can for ward the Sortifacate if you can Judge frome this letter givin Sadisfaction in the County of ——— is my home but I has been hear so long all hear Know me

I can suberate fraction devision fraction & work some in Dismal canseal a little round a long Canselation if it may please your honor to grant me this now & next Session I may try to come near you So you may see me if you cant due this let me no will you be at the cort this cort I will try to meet you thare if could send it I can go to work now

Your ————

MY FIRST SCHOOL.

WHEN I went into the school-house for the first time, on the morning of the 16th of September, I found about thirty children waiting and watching for their future teacher. I called them to order, read a few verses in the Bible and repeated the Lord's Prayer. They did not know what to make of such an exercise, for they had never heard anything like it before. The next thing in order was to classify them, or grade the pupils. On making preliminary inquiries, I found eight classes in geography. The first five classes contained about two pupils in each; the rest of the pupils were divided among the other three classes. I found some pupils in McGuffey's

Fourth Reader, who had to spell nearly every word before pronouncing it; and who could not even calculate a simple sum in addition. Some who were in McGuffey's Second Reader, were *far* beyond those in the Fourth Reader. The fifth grade had lessons in grammar and parsing all last year, and yet they had no clear ideas on the subject. They really did not know how to *parse* a noun, and, indeed, did not know the parts of speech. The school had only one blackboard, as they called it, though it was really nearer white than black. The map of Maryland hung on the wall, carefully rolled up, with the dust about half an inch thick on the top. The scholars had never seen it open, and did not know what it was used for. The desks were placed against the wall, and accommodated only sixteen pupils, though there was an average in the spring term of thirty-three scholars. But there was one remarkable feature of the building, of which not every city school can boast, and that was perfect ventilation. The crevices between the floor and wall, and in the sides of the wall, served as inlets for the pure air, the holes in the floor allowed the cooled air to pass out, and the holes in the roof served as outlets for the impure air.

L. W.

NOTES ON EDUCATION.

THE Committee of School Superintendents and Commissioners, who have just reported upon the school systems of this State, declare that the Legislature of the State of New York should revise and consolidate all school supervision and administration under a State Board of Education, and that this Board of Education should appoint the State Superintendent of Public Instruction, who should serve at the pleasure of the Board, and be subject to its direction and instruction. As to the selection of a chief educational officer, the Commission recommends appointment by a Board of Education as the mode most free from the trammels of political partisanship. The State Superintendent was requested to devise a

plan for remedying the defects in the requirements for teachers' certificates; and it was resolved that the association favored the enactment of a law requiring any person who is a candidate for the office of School Commissioner to hold a college diploma, a normal school diploma, or a State certificate; to have had at least three years' successful experience in teaching or school supervision, and to be not less than twenty-five years of age; and that the term of office of School Commissioners be made six years instead of three. The association also recommended a course of study for the common schools within a town, commissioner district or county, which shall involve examination and a certificate or diploma at its completion.

VERY good progress has been made in the South Carolina schools during the past year. The average attendance of white pupils was 58,368—an increase of 4,250 over the previous year. The attendance of colored pupils was 64,095 against 62,121 the previous year. The number of schools has been slightly decreased—there having been formerly a tendency to establish too many schools—and the number of teachers has been increased. There were 2,901 schools taught by 2,090 white teachers and 1,076 colored teachers. The average session is still too short, being only $3\frac{5}{6}$ months. The Superintendent attributes this to the diversion of the poll-tax, either in whole or in part, in fourteen counties, or nearly one-half the State, to the payment of past-due school claims. The colored people constantly show an increasing desire to avail themselves of the schools. The only institution for higher education in South Carolina, which receives State aid, is the Claflin University for colored young men and women. Superintendent Thompson recommends, first—That in providing for the payment of past-due school claims no portion of the school fund be used. Second—That incorporated towns be allowed to levy local taxes for school purposes. Third—That provision be made for establishing a Normal School. Fourth—That provision be made for the prompt payment of teachers' salaries.

PRESIDENT GILMAN, of Johns Hopkins University, records

that during the past three years that institution has had 127 graduate students, 57 of whom have held fellowships, and 91 collegiate students. He adds that the number of students constantly increases, and their quality constantly improves; that there has not been an occasion for the faculty to reprimand or censure a single student; and that it has never been his good fortune to live among a more earnest, diligent and enthusiastic company of young men than those who are there assembled.

THE questions of teachers' salaries has been finally decided in Pittsburg. The maximum salary in the primary department is to be \$500, the minimum \$300. In the grammar department the maximum is to be \$600, the minimum \$500. The maximum to be paid assistant principals is \$650, the minimum \$600. The principals are to receive \$1,400, \$1,000 and \$750.

PROFESSOR OLNEY, of Ann Arbor, holds that the public schools should not be expected to turn out technical specialists, but "simply good boys and girls." And he adds: "Character is what should be produced in the schools, and it is too often not so highly regarded as it should be in both teachers and pupils."

BY THE new California school law the local School Boards, have it in their power to adopt text-books, but once selected, no change can be made inside of four years. The State school fund can now be used only for the support of primary and grammar schools.

THE Rev. Dr. Barbour, of New Haven, spoke words of wisdom at the recent teachers' meeting in that city. Teach by principle, he said, rather than by expediency; educate the mind, draw it out, and teach it how to apply itself.

A WARM discussion on corporal punishment was concluded without action in the Cincinnati School Board the other day. Statistics were offered showing that the newest teacher whipped most and the best teacher whipped least.

EXAMINATION QUESTIONS—ELEVENTH GRADE.

BALTIMORE COUNTY, JUNE, 1878.

GEOGRAPHY.

1. Where is there neither latitude nor longitude?
2. What is the supposed cause of earthquakes?
3. Describe the formation of coral Islands.
4. What hemisphere, the Northern or Southern, has the warmer climate, and why? Why is it warmer in summer than in winter? Why is the climate of Europe warmer than in the same latitude in the United States?
5. Name the States of the U. S. bordering on the Atlantic Ocean; on the Gulf of Mexico.
6. How are springs formed?
7. Name one large city on Lake Erie in each of the following States: New York, Pennsylvania, Ohio.
8. Of what use to man are mountains?
9. Name and locate three large volcanoes.
10. What is the cause of winds?

HISTORY.

1. With whose surrender did the Revolutionary war terminate?
2. What was the Stamp Act, and when was it passed?
3. Name the battles of the late civil war fought in Maryland.
4. When was West Virginia made a separate State?
5. Give a brief account of Braddock's defeat.
6. What distinguished foreigners served under the American banner during the Revolutionary war?
7. What steps are necessary to amend the Federal Constitution?
8. What was the principal cause of the French and Indian war?
9. Who was William Penn?
10. When was the battle of Gettysburg fought, who were the commanders on both sides, and what was the result?

PHILOSOPHY.

1. Name the principal physical causes that modify the properties of bodies.
2. Name the general properties that belong to all bodies.
3. What is inertia, porosity, compressibility, tenacity, hardness, ductility?

4. What is a lever? Name and give one example each of the different kind of levers.
 5. What are capillary forces?
 6. What is the amount of atmospheric pressure on the human body, and how is this pressure resisted?
 7. What is vaporization? Condensation?
 8. What is latent heat? Sensible heat?
 9. How are fogs and clouds formed.
 10. Describe the construction and use of the thermometer.
-

BOOK KEEPING.

1. Define Book-keeping.
 2. Describe the principal books used.
 3. Give general formula for debiting and crediting accounts.
 4. Define bills receivable. With what is bills receivable account debited and with what credited?
 5. Define bills payable. With what is bills payable account debited and with what credited?
 6. Write a receipt in full of Jno. Smith's account, who has paid you \$300.
 7. Which side of the cash account, if any, must be the larger, and why?
 8. Journalize the three following transactions:
Bought of E. Brown, on account, 500 yards of broadcloth at \$3.00.
100 yards of domestic cassimere at \$1.00.
 9. Sold Jno. Jones, on his note at 30 days, 250 yards black French cloth, at \$4.00.
 10. Accepted E. Karnes' draft on us at 10 days' sight, favor J. Johnston, \$600.
-

GEOMETRY.

1. Name four different kinds of triangles.
2. Name four different kinds of quadrilaterals.
3. Define circumference, diameter, radius, chord.
4. What is an inscribed triangle?
5. Define theorem, problem, proposition.
6. If two straight lines intersect each other the opposite or vertical angles which they form are equal.
7. If one side of a triangle be produced the outward angle will be equal to the sum of the inward opposite angles.
8. The angle formed within a circle by the intersection of two chords, is measured by half the sum of the intercepted arcs.

SPELLING.

Acknowledge, Beauteous, Scurrilous, Exaggerate, Ignoramus, Irretrievable, Perennial, Villainous, Assignment, Empyreal, Habiliment, Physiology, Chloroform, Fusible, Martyrdom, Tangible Inflammation, Scintillate, Fascinate, Harassing, Capillary, Hemorrhage, Neutral, Inveigle, Colonnade.

MENTAL ARITHMETIC.

NOTE.—Write the analysis in full.

1. Benton lost $\frac{4}{5}$ of all his money, and then found $\frac{3}{4}$ as much as he lost, then had \$120; how much money had he at first?

2. Two-thirds of 30 is $\frac{5}{2}$ of the difference between two numbers. and the less is $\frac{2}{5}$ of the greater; what are the numbers?

3. A earned $\frac{2}{3}$ as much as B, and B earned $\frac{3}{4}$ as much as C, and they together earned \$108; required the amount earned by each.

4. Willis sold some books for \$12, and thereby cleared $\frac{1}{5}$ of the cost; what would he have lost per cent. by selling them for \$8?

5. \$24 is 4 per cent. of the sum of A's and B's fortune, how much money has each, provided A has twice as much as B?

6. A boat whose rate of sailing is 5 miles an hour, moves down a river whose current is 3 miles an hour, how far may it go that it may be back in 10 hours?

7. A farmer rents annually a farm that is valued at \$2,000 for \$180 what rate of interest does he pay?

8. A father divided \$98 among his two sons and three daughters, giving to each daughter half as much as each son, how much did each receive?

9. Two pipes fill a cistern in 15 hours, and $\frac{2}{3}$ of what one pours in equals $\frac{2}{5}$ of what the other pours in, how long will it take each to fill it?

10. If a miller takes out 4 quarts for every bushel of grain that he grinds, what per cent. toll does he take?

PRACTICAL ARITHMETIC.

1. Find the value of $\frac{1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4}}{1 + \frac{1}{2} - \frac{1}{3} - \frac{1}{4}}$ of $2\frac{2}{3}$.

2. Sold my carriage at 30 per cent. gain, and with the money bought another which I sold for \$182, and lost $12\frac{1}{2}$ per cent; how much did each carriage cost?

3. A certain window is 30 feet from the ground, how far from the wall of the house must the foot of a ladder 50 feet long be placed to reach the window?

4. A, B and C in partnership gained \$3,000; A's stock was \$5,000, B's \$6,000 and C's gain \$1,400; required C's stock and A's and B's gain.

5. Required the difference between the present worth and the proceeds of \$1,500 due 4 years, 2 months hence at 6 per cent.

6. Find the square root of 2050624. The cube root of 4492125.

7. A man lost 20 per cent. of his goods, and sold the remainder for $33\frac{1}{2}$ per cent. more than cost, and gained \$250.75, what did his goods cost?

8. Mr. D. received 12 shares and \$7.50 in money as his share of a $7\frac{1}{2}$ per cent. dividend, how many shares, at \$50 each, did he then own?

9. A man sold $\frac{2}{5}$ of $117\frac{4}{9}$ acres of land for \$1,796, what is the value of $\frac{2}{3}$ of the remainder?

10. A owns a rectangular lot containing 20 acres, whose length is twice its breadth; what is the distance around it?

GRAMMAR.

1. Define a primitive word; a derivative. Write five words of each class.

2. What is a phrase? Write a sentence containing an infinitive phrase.

3. In the sentence, "The enemy retreated in the greatest confusion," write the words that make a phrase and tell to what class it belongs.

4. What is a copulative conjunction? Give the list?

5. What is the synopsis of a verb? Give the synopsis of *teach* in all the modes and tenses, active voice.

6. What is a participle? Give the present, perfect, and compound participles of the following verbs: *come, lay, sit, cultivate*.

7. Name the ways in which a noun or pronoun may be used independently.

8. Correct the following sentences and give the reason: This was divided between your brother and I. They that serve him, he will amply reward. What do you think I saw?

9. Analyze the following: *A man whose inclinations lead him to be dishonest, can never be trusted.*

10. Parse the words in *italics* in the preceding sentence.

PHYSIOLOGY.

1. What are elastic ligaments, and where are they situated?

2. How do the muscles protect the body from injury?

3. What are the four principal kinds of albuminous matters, and where are they found?

4. Describe the "peristaltic action" of the intestine, and tell what effect it has upon the food.

5. Why does not the blood coagulate while circulating in the vessels?
6. What are the organs for the circulation of the blood?
7. What are the three processes of nutrition?
8. How are the different parts of the body placed in communication with the brain?
9. What is paralysis?
10. What are the three principal parts of the brain?

ALGEBRA.

1. Factor $x^4 + 2ax^3 + a^2x^2$
2. Divide $\left(\frac{1}{1+x}\right) + \left(\frac{x}{1-x}\right)$ by $\frac{(1+x^2)^2}{(1-x^2)^2}$
3. Reduce to a simple fraction $\frac{\frac{a^3-x}{2b^4}}{\frac{c+1}{2bx^2y^2}}$
4.
$$\frac{1 + \frac{x}{4} + m}{\frac{\frac{x}{6}}{6}} = \frac{12(m+6)}{2x}$$
5.
$$\frac{\frac{x-y}{5} + \frac{x+y}{19}}{x-y} = 4$$
6. What is the square root of $x^2 + 2xy + y^2 + 6xz + 6yz + 9z^2$
7. A clerk spent $\frac{2}{3}$ of his salary for board and $\frac{2}{3}$ of the remainder in clothes, and saved \$150 a year. What is his salary?
8. A's age is double that of B; B's is triple that of C, and the sum of their ages is 140 years. What is the age of each?
9.
$$\frac{ax^2a-(2)}{1+x} = 1-x$$
 to find x
10. What two numbers are those, whose product is 144, and the quotient of the greater divided by the less is 16?

EDITORIAL NOTES.

TEACHERS' ASSOCIATION.—The fifth district association of Harford county, met at public school No. 2 on the evening of December 26th. J. W. Carter read an essay, "Teachers and Teachers' Association." The paper presented several new phases not yet considered with regard to the duties of teachers and took advanced ground on several important questions. A lively and thoughtful discussion was called forth by its reading. The paper was requested for publication in the county papers. C. W. Burkins led a class drill in arithmetic. Programme for next meeting—Reading, K. Lizzie Scarborough; essayist, H. S. Huff; Normal class drill in algebra, N. O. Stokes; exercise in decimals, J. W. Carter; first lessons in geography, F. Davis; class in history, C. W. Burkins.

THE teachers of Washington county petitioned the School Board for a restoration of their salaries to the scale that prevailed before the late reduction—on the ground, we suppose, that if salaries are to come down when times are hard, they should be allowed to go up as times improve. The Board decline to grant the request, assigning as a reason, that it would create a debt for which the commissioners would be personally responsible. The fact is, the schools are just beginning to realize the results of the bill passed by the last Legislature, by which \$100,000 a year was withdrawn from the white schools.

It is with no ordinary feelings of sorrow that we record the death of Prof. Joseph Asbury Morgan, vice-Principal of the Baltimore City College. He was born in Bath county, Virginia; received his early education at Emory and Henry College, Virginia; taught for some time at Georgetown, D.C.; came to Baltimore in 1848; was associate-Principal of the Light Street Institute for boys for several years; joined Mr. Asher Clark for some time in the management of a girls' school, and was appointed Professor of Greek and Moral Philosophy, in Baltimore City College, in 1862, a post which he held till he died, on the 30th of November, 1879, at the age of sixty-one. Though he had been an invalid for several months, he was confined to his house only for three days before his death.

It would be proper and fitting that this JOURNAL should contain not only a record of Professor Morgan's death, but some estimate and brief analysis of his professional character. But the writer is not equal to the task at present; the loss is too great to admit an accurate measurement. He can only drop a tear of affection and regret to the memory of his friend—the conscientious, devoted, successful teacher; the earnest, thoughtful, laborious student; as a scholar equally at home in the literatures of Greece, Rome, and England; as a gentleman *sans peur et sans reproche*; as a Christian, childlike in the simplicity of his faith, and manly in the expression of his views; as a man, "take him for all in all we shall not look upon his like again."

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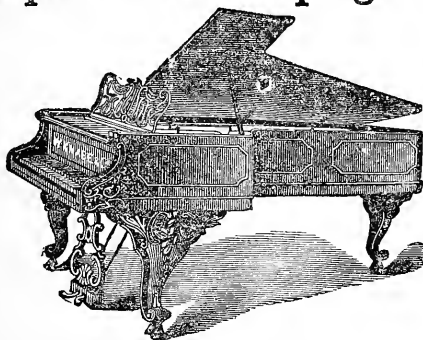
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DEVOTED TO THE CAUSE OF EDUCATION.

Vol. VI. FEBRUARY, 1880. No. 6.

REPORT OF THE STATE BOARD OF EDUCATION, 1879.

The following summary exhibits, in a condensed form, the most important facts connected with the administration of the Public School System of the State, including the City of Baltimore, for the year ending September 30, 1879, so far as such facts can be presented in figures :

Number of schools in Baltimore City.....	125	
" " the counties.....	1,884	
Total.....		2,009
Being an increase in 1879 of.....		20
Number of different pupils—city.....	53,392	
" " " counties.....	112,094	
Total.....		165,486
Being an increase in 1879 of.....		9,212
Highest number enrolled in one term—city.....	36,505	
" " " " —counties.	93,886	
Total.....		129,891
Being an increase in 1879 of.....		2,436
Average number in daily attendance—city.....	30,477	
" " " " —counties.	53,768	
Total.....		84,245
Being an increase in 1879 of.....		2,416
Number of teachers—city.....	822	
" " —counties.....	2,269	
Total.....		3,091
Being an increase in 1879 of.....		20
Number of months schools were open—city.....	10	
" " " " —counties.	8 5-6	
Average for the State.....	9 5-12	

Amount paid for teachers' salaries—city.....	\$ 500,947 15	
“ “ “ “ —counties.....	638,473 89	
Total.....		1,139,421 04
Being an increase in 1879 of.....		17,007 35
Amount paid for building, repairing and furnish- ing school-houses—city.....	64,586 52	
Amount paid for building, repairing and furnish- ing school-houses—counties.....	107,372 78	
Total.....		171,959 30
Being a decrease in 1879 of....		35,702 80
Amount paid for books and stationery—city....	30,476 53	
“ “ “ “ —counties.....	53,580 16	
Total.....		84,056 69
Being a decrease in 1879 of.....		10,896 32
Am't paid for rent, fuel and incidentals—city...	47,884 99	
“ “ “ “ —counties.....	44,877 70	
Total.....		92,762 69
Being an increase in 1879 of.....		4,059 80
Total expenditure for Public School purposes— city.....	643,895 19	
Total expenditure for Public School purposes— counties.....	907,661 13	
Total.....		1,551,556 32
Total expenditure for Public School pur- poses—1878.....		1,593,259 66
Being a decrease in 1879 of.....		41,703 34

Of the total expenditure by the city (\$643,895.19):

The current expenses of White Schools amounted to.....	540,465 02
The current expenses of Colored Schools amounted to.....	59,532 95
The expenditures for building and repairs for White Schools.....	43,326 87
The expenditures for building and repairs for Colored Schools.....	570 35

Comparing the county schools of the present with those of the preceding year, we have:

Average number of schools reported in 1879.....	1,884
“ “ “ “ 1878.....	1,862
Increase in 1879.....	22
Total number of scholars enrolled in 1879.....	112,094
“ “ “ “ 1878.....	110,323
Increase in 1879.....	1,771

Highest number enrolled in one term, 1879.....	93,386
“ “ “ “ “ 1878.....	92,167
Increase in 1879.....	<u>1,219</u>
Average number enrolled in 1879.....	84,421
“ “ “ “ 1878.....	82,260
Increase in 1879.....	<u>2,161</u>
Average number of scholars in daily attendance 1879.....	53,768
Average number of scholars in daily attendance 1878.....	52,311
Increase in 1879.....	<u>1,457</u>
1879. 1878.	
Number of teachers (including assistants), men.....	1,216 1,207
“ “ “ “ women.....	1,058 1,044
Total.....	2,269 2,251
Increase in 1879.....	18
Average number of months schools were open 1879.....	8 mos., 25 days.
Average number of months schools were open 1878.....	8 mos., 14 days.
Increase in 1879.....	11 days.
Amount received from State as School Tax, Free School Fund and Academic Fund—1879.....	\$322,371 15
Amount received from State as School Tax, Free School Fund and Academic Fund—1878.....	361,738 56
Decrease in 1879.....	<u>\$ 39,367 41</u>
Amount received from appropriation to Colored Schools in 1879.....	\$ 79,441 56
Amount received from appropriation to Colored Schools in 1878.....	79,441 55
Amount received from county taxation 1879.....	\$384,489 09
“ “ “ “ “ 1878.....	385,651 56
Decrease in 1879.....	<u>\$ 1,162 42</u>
Amount paid for teachers' salaries, 1879.....	\$638,473 89
“ “ “ “ “ 1878.....	631,809 89
Increase in 1879.....	<u>\$ 7,164 00</u>
Amount paid for building, repairing and furnish- ing school-houses in 1879.....	\$107,372 78
Amount paid for building, repairing and furnish- ing school-houses in 1878.....	105,588 31
Increase in 1879.....	<u>\$ 1,784 47</u>

Amount paid for books and stationery—1879....	\$ 53,580 16
“ “ “ “ —1878....	55,867 34
Decrease in 1879.....	\$ 2,287 18
Amount paid for supervision and office ex- penses—1879.....	\$ 37,900 82
Amount paid for supervision and office ex- penses—1878.....	40,582 78
Decrease in 1879.....	\$ 2,681 96
Amount paid for incidental expenses—1879.....	\$ 44,877 70
“ “ “ “ —1878.....	42,990 13
Increase in 1879.....	\$ 1,887 57
Amount paid for interest—1879.....	\$ 3,922 50
“ “ “ “ —1878.....	4,115 02
Decrease in 1879.....	\$ 192 52
Amount paid for miscellaneous expenses—1879..	\$ 7,230 24
“ “ “ “ —1878..	6,404 40
Increase in 1879.....	\$ 825 84
Amount of indebtedness paid in 1879.....	\$ 14,303 04
“ “ “ “ 1878.....	28,425 77
Decrease in 1879.....	\$ 14,122 73
Total expenditures for Public School purposes— 1879.....	\$907,661 13
Total expenditures for Public School purposes— 1878.....	915,283 64
Decrease in 1879.....	\$ 7,622 51
The items of expenditure which show an increase are:	
Salaries.....	\$7,164 00
Building.....	1,784 47
Incidentals.....	1,887 57
Miscellaneous.....	825 84
Total.....	\$ 11,661 88
The items of expenditure which show a decrease are:	
Books and stationery.....	\$ 2,287 18
Supervision.....	2,681 96
Interest.....	192 52
Indebtedness.....	14,122 73
Total.....	\$ 19,284 39
Showing a net decrease in 1878 of.....	\$ 7,622 51

COUNTY REPORTS.

The Annual Reports of the several Boards of County School Commissioners, which are given in full, deserve the special attention of tax-paying citizens. In them will be found a detailed and circumstantial account of the expenditures for each separate school, as well as the general expenses of the School Board. These reports show also, as well as such a matter can be shown by figures, the value received in return for these outlays; that is to say, the number of children taught in each school, and the branches of learning in which they were instructed. A careful study and analysis of such reports will form a necessary preparation for future legislation on the public school question.

SCHOOL LAW.

The views of the Board respecting the propriety of asking for any change in the school laws at the present time are well expressed in the following report made by a committee appointed to investigate the subject, and adopted unanimously by the Association of Public School Commissioners at their meeting in Baltimore, November 26th, 1879; eighteen out of the twenty-three counties being represented on the occasion.

“So far as your committee have been able to ascertain the opinion of their fellow-citizens, the school law, as it stands, fairly represents the sentiments of the people of Maryland. While peculiarly adapted to our own wants, it comprises many of the best features of the best systems of other States, and is becoming every year better understood abroad and more popular at home. The animated canvas preceding the late election gave a fair opportunity for a full expression of opinion on the subject. No opinion adverse to the system was expressed by any party; on the contrary, all parties endorsed the general principle, while a large majority approved the details of the law and the mode of administration.

SCHOOL COMMISSIONERS.

“There are only two points on which any unfavorable criticism has been made—first, the method of appointing

School Commissioners ; second, the expense of the system. It has been claimed that the appointment of School Commissioners by the judges of the Circuit Court is unconstitutional. The only meaning that can be attached to this word in the present connection is that the constitution does not require the judges to perform the duty, and if they should neglect it there is no way to compel them to perform it. But as all the judges, with a single exception, have performed this extra duty, and have done it satisfactorily, there seems to be no reason to make a change. This method of appointment has worked well ; it is not certain that any other would work better.

EXPENSE OF THE SYSTEM.

“Second, With regard to the expense of the system, your committee would remark that, while the aggregate is large, it is small compared with the work that has to be done. The total annual expenditure for the county schools, including not only teachers’ salaries, but buildings, repairs, supervision and every other expense connected with the administration may be stated in round numbers at \$900,000. For this sum the law requires us to provide school facilities for over 200,000 pupils. It is evident that if all who have a legal right to admission were to avail themselves of the privilege the funds would be entirely inadequate. The last school report shows that more than 110,000 pupils were educated in the public schools during the year. This proves the cost of education to have been but little more than \$8 per capita. If we reckon an average school with one teacher to consist of thirty enrolled pupils, then the average cost of such a school for teachers’ salary, repairs of house, fuel, furniture and supervision, with a proportionate allowance for new buildings, was only \$240. It is not possible, under present social conditions, to reduce this amount without destroying the efficiency and risking the existence of the schools. It is very doubtful whether the expenditure has not been already reduced below the point that true economy would indicate. We may be able to hold our

own, but the loss of \$100,000 annually by the white schools, under the provisions of chapter 91, of 1878, will paralyze our power for future progress, unless the voluntary contributions of the people in the several counties shall make up the deficiency."

LOSS OF INCOME.

The effect of chapter 91, Laws of 1878 has been to lessen the legal income of the white schools \$100,000 a year. The actual income has not suffered so great a diminution owing to the fact that the legal income was not paid in full for several years previous to 1878; still, the loss has been sensibly felt. It has retarded the building of school-houses, and postponed necessary repairs; it has prevented the schools in some counties from being kept open four terms in the year as required by law; it has reduced teachers' salaries in some counties and increased local taxation in others. Progress under the circumstances is difficult, and it is very doubtful if the present advanced position can be long sustained. There is no man in Maryland at all conversant with the subject, who does not know that the State tax of ten cents on the hundred dollars was intended for the support of white schools exclusively. In fact, when the tax was first imposed the colored schools received no part of it whatever, and had no legal right to any part. They were entitled merely to "the total amount of taxes paid for school purposes by the colored people." (Laws of 1868, Chapter IX.)

APPROPRIATION TO COLORED SCHOOLS.

It was well-known to every member of the Legislature of 1872 that the \$50,000 then appropriated to the colored schools was to be taken from the general treasury, and not from the proceeds of the public school tax, which up to that time had been devoted exclusively to the white schools. The words of the section of the school law plainly indicate that there were two sources of supply—the ten cent tax for the white and a special appropriation—\$50,000 in 1872—for the colored schools.

Section 3, sub Chapter XVIII of Chapter 377, Laws of 1872 reads thus: "The Comptroller shall apportion *the sum appropriated for the support of the colored schools* of the several counties and the City of Baltimore in proportion to their respective colored population between the ages of five and twenty years; said apportionment to be made at the time he apportions the *levy for the white schools*. The "levy for the white schools" is thus seen to be distinct from the "sum appropriated" to colored schools. But the language of the appropriation bill is still more convincing. Laws of 1872, Chapter 252, Title, *Schools*: "To the several counties of this State, and to Baltimore City, to be apportioned as the Legislature may direct \$525,000 or whatever sum may be paid into the Treasury on account of the levy of public school tax; * * * to the several counties and Baltimore City for the education of the colored children \$50,000; for donations to colleges, academies and schools \$31,500, as per acts and resolutions heretofore passed. To the Deaf and Dumb Asylum at Frederick \$25,000; to the Maryland Institute for the promotion of the Mechanic Arts \$3,000; to the Colored Normal School \$2,000 and for the Maryland Agricultural College the sum of \$6,000." How can it be imagined that any one of these items was to be paid out of another? Are they not all equally independent? If the \$50,000 for colored schools was to be taken from the \$525,000 of public school tax, should not the other items of the paragraph be also paid from the same source?

It is most earnestly to be hoped that the General Assembly of 1880 will reconsider this subject, and return to the law as it was understood and executed from 1865 to 1878. Then we may expect that all our schools, white and colored, will be able not only to maintain their present efficiency, but to make further progress.

The two most important items in the administration of a public school system are, first, the honest and judicious expenditure of public money; and secondly, the employment of efficient teachers.

CHECKS ON THE EXPENDITURE OF MONEY.

The money is received by the treasurer of the School Board, who is under a sufficient bond for the faithful performance of his duties ; and it is expended by him, under the orders of the Board. The largest items of expenditure (probably three-fourths of the whole amount) are for teachers' salaries, fuel and incidentals ; these are reported by the teachers respectively, and sworn to ; audited and approved by the local trustees ; re-audited and re-approved by the County School Board ; and, finally, passed to the treasurer for settlement, whose bond is responsible if he makes an illegal payment, even after being ordered to do so by the Board, as was made plain in a case decided some years ago in St. Mary's county. The remaining payments, in addition to the fixed salary of the Examiner and the per diem of the School Commissioners, are for books, for fuel, and for building and repairs of houses. These items are kept separate, and where it is possible they are charged against each school separately. Thus, a citizen of any county can ascertain, by looking at the annual report, how much any school in which he is interested receives on account of salary, repairs, incidentals, etc. If any false representation is made, the real facts can easily be ascertained.

In the purchase of books and the building of houses, it would be too much to claim that no mistakes are ever made ; it is sufficient to say that there has been no evidence of either extravagance or dishonesty. It is a great pleasure to be able to put on record that, during the fifteen years that have elapsed since the beginning of the system, nearly \$12,000,000 have passed through the hands of forty different treasurers, not only without the loss of a single dollar, but without one plausible charge of serious indiscretion.

HOW GOOD TEACHERS ARE SECURED.

As to the selection of teachers, it is difficult to see how the public could be better guarded against the misfortune of having incompetent teachers placed in office, than under the

present system. First, no teacher can be selected by the Trustees unless he has a certificate of qualifications from a legal Examiner. Secondly, this selection is not valid until it is confirmed by the County School Board. But, thirdly, if he is a "new man," his certificate expires at the end of six months, and cannot be renewed unless the Examiner is satisfied, after careful personal examination, that the "licentiate" has proved to be a competent teacher. (Graduates of the State Normal School are required to spend a year in probation before receiving their permanent diplomas.) Now, his is all; for, fourthly, if a teacher, after all these precautions, should prove incompetent, the Trustees can dismiss him on thirty days' notice; and, finally, should the Trustees be unwilling to assume this responsibility, the State Board of Education has power to remove the teacher, when the facts are properly presented.

SCHOOL HOUSES.

The next most important item is the building of school-houses. The law requires school-houses to be built according to plans approved by the Board of County School Commissioners. It sometimes happens that mistakes are made through the inexperience of these gentlemen, and it would be well to have some uniform plans for their guidance. In this connection, the State Board endorses the report adopted by the Association of Public School Commissioners:

"In planning a school-house, the first thing to be considered is the number of pupils to be accommodated. It may be assumed that the minimum number is 30. The next point is the number of square feet of floor-space and the number of cubic feet of air-space to be allowed to each pupil. Authorities differ on this point; but no authority gives less, under any circumstance, than 15 square feet of floor-space by 12 feet of height, or 180 cubic feet of air-space. The best authorities consider double this amount to be desirable, though not practicable. Taking the lowest estimate, the school-room for 30 pupils must have 450 square feet of floor-space and 5,400

cubic feet of air-space. This will be supplied by a house 18 by 25 feet and 12 feet high in the clear. Such a house will contain three rows of double desks, five in each row, with four aisles 18 to 22 inches wide, according to the size of the desks, and a space of 10 feet by 18 for teacher's platform and recitation benches. By diminishing this latter space a little, 30 single desks may be placed in the room. The width of the house must be proportioned to the size of the desks used. Assuming the double desks to be employed (as is the case in 99 per cent. of our schools), a house should be built to hold three rows in its width, or four rows. It is not convenient to have less than three nor more than four. Consequently, a house, or room, should be either 18 feet wide, or 23.6. These, then, are our standards of width for houses furnished with double desks. If a house is to be built for 40 pupils, we may increase either the minimum length or width. By adding five feet four inches to the minimum length, we have a house 18 feet by 30 feet 4 inches, which will accommodate 42 pupils. For 60 pupils, the house should be 23.6 in width (four rows of desks) by 36 feet long.

"The next point to be considered is the heating and ventilation. Here two rules may be laid down: First, every school-house should have brick flues, open from the floor to the roof. Second, every stove should have a pipe to bring in fresh air for its own consumption. The plan formerly so prevalent of running a stove-pipe through the middle of the roof is mentioned only to be condemned. It is unsafe. More houses have been burned through this faulty construction than from all other causes combined; and it makes ventilation impossible. A brick flue is not expensive; it is safe, and by dividing it longitudinally into two sections, it is converted into a ventilating shaft. Even a single flue may be used for the double purpose of carrying off the smoke and discharging the foul air, by entering the stove-pipe near the ceiling, and leaving a hole in the flue near the floor for the exit of cold air. This hole may be fitted with a register, which can be closed, if necessary, occasionally, to prevent a down draft.

"So much may be said briefly with regard to building a school-house with one room. If more than one room is needed, the following considerations may be found useful: 1. A country school-house ought generally to have but one story. The small saving in original expense made by building a two-story house is counterbalanced by the continued expense of keeping the stairway in repair, and by a great loss of convenience. When the number of scholars does not much exceed 60, the main room should have desks for all the pupils, and a recitation room, with benches only, should be added. This room should be used for small classes, and should have not less than 300 square feet of floor-space."

REPORT

OF THE PRINCIPAL OF THE STATE NORMAL SCHOOL.

The Principal of the State Normal School is, *ex officio*, Superintendent of Public Instruction. When the State school system began in 1865, the Superintendent of Public Instruction was, *ex officio*, Principal of the State Normal School. The school law of 1868 reversed the relations; but it did more. It united both offices in one officer.

It would seem hardly to admit of doubt that the time has come when the offices should be separated, and a STATE SUPERINTENDENT appointed who could give his whole time and energies to his special work. The only objection that is likely to be made, is on the ground of expense; but the importance of the trust should be a sufficient answer to this. There is another and more serious objection—that the office is apt to become a political one, and that appointments will be made to promote partizan rather than educational interests. There is no way of avoiding this danger altogether, but it may be lessened by proper legislation. The practice of rotation in office, unwise as it is when applied to clerical duties, becomes absurd when applied to education. An annual, or even a biennial change, in the administration of a department which is still in its formative stage, would be fatal to healthy growth.

But if sufficient permanence could be secured, and the office removed from the class of political rewards, the appointment of a Superintendent of ability and experience would contribute greatly to the present efficiency of the school system, and ensure its improvement in the future.

The period covered by this report has been one of great financial depression, and the schools have not entirely escaped the depressing influence. But the effect has thus far been only to diminish the rate of progress. Had times been better, and money more plentiful, the advance would have been greater; but it is a matter of congratulation that, under the circumstances, there should have been any improvement at all. With a small decrease in the total expenditures, there has been a small increase both in the total enrolment and the average attendance of pupils, and a slight increase (about one per cent.) in the expenditures for teachers' salaries.

THE IMPROVEMENT in the internal management of the schools has been well marked. After visiting schools of all grades in eleven counties, I am able to bear personal testimony to their general efficiency. Much, however, remains to be done in order to bring the backward schools up to the level of the best. And this can be accomplished only by the persistent efforts of the County Examiner, aided by the hearty co-operation of the Trustees and School Commissioners.

In the desire for RETRENCHMENT, which has pervaded all sections and all parties in the State, it was not to be expected that the schools should be unnoticed. Yet the only practical suggestion that I heard of in this direction was that \$20,000 a year might be saved by abolishing the office of County Examiner. This would be about as wise economy as if a mill owner, employing a large number of "hands," were to dismiss his manager in order to save the amount of his salary. The services of the Examiner are simply indispensable; and his ability and fidelity can be accurately measured by the efficiency of the schools which he controls. There is no small economy that would produce such speedy and disastrous results as the lack of a competent administrative officer.

It affords me pleasure to bear witness to the general efficiency and fidelity of the COUNTY EXAMINER. There have been differences in the results obtained by them, but on the whole they have largely increased the productive value of the money expended on the school system. The length of time that many of them have been retained in office, (under many changes of administration) proves the high estimation in which they have been held by their fellow-citizens. The Examiner of Queen Anne's County has held his place for fifteen years, that is to say, from the beginning of State School System in 1865. The Examiners in Caroline, Carroll, Cecil, Dorchester, Montgomery, Talbot and Washington Counties have been retained for twelve years—from the re-organization of the system under the constitution of 1867 to the present time. In Baltimore County and Prince George's there have been no changes in the same time, except those caused by death. In Charles and Frederick, the Examiners were changed but once in twelve years, and in the remaining counties the average term of service has been four years. At this writing (January 14, 1880) it is understood that twenty-one of the twenty-three Examiners have been re-appointed for a new term of two years.

I have visited and carefully examined the most of the HIGH SCHOOLS and some of the largest graded schools in the State during the year. The result was, in most cases, highly satisfactory; there are symptoms of a reviving taste for classical learning, which, I trust, will not disappoint our expectations. As the public schools have abolished private schools to a great extent by making them unprofitable, it has become necessary for the former to assume some of the functions of the latter. The primary schools are the substitutes of the old county free schools, and the high schools are the legitimate successors of the old academies. Both primary and high schools must be supported, encouraged, and extended, if we would keep our place in the march of civilization. The expense of the high school is the only plausible and indeed the only real

argument against it. But it must be borne in mind that in a community that sends one hundred and fifty children to school we can have a graded school with a high school department at about the same expense as will maintain five country schools, having an average attendance of thirty pupils. Indeed, if the people wish to have it done, and will take the proper means of doing it, algebra can be taught as cheaply as arithmetic, and Latin grammar as cheaply as English grammar.

TEACHERS' INSTITUTES or ASSOCIATIONS have been held during the year in many, though not in all the counties. The reduction of salaries in some counties, and delay of payment in others, have made the school authorities reluctant to impose any additional burden on the teachers; but whenever these meetings were held the results have justified our highest expectations. The Counties of Allegany, Baltimore, Carroll, Cecil, Harford, Kent, Queen Anne, Talbot, Wicomico and Washington, may be mentioned as especially active in this line.

The meeting of the STATE TEACHERS' ASSOCIATION at Hagerstown in August, was well attended, and excited great interest. The papers read and the discussions that followed were well calculated to disseminate sound views both as to the theoretical principles and the practical details of the work of education.

The statistics of the colleges receiving aid from the State will be found in the proper table of this report.

As one of the Trustees of the AGRICULTURAL COLLEGE I have better facilities for obtaining exact information about its condition than can be gathered from written returns. The improvement in this institution mentioned in my last report has been maintained and increased. Under the cautious but energetic administration of the President, aided by the hearty co-operation of a corps of able and hard-working instructors, the college seems to have taken a new lease of life, and gives cheering evidence that it will yet fulfill the promises of its youth. The harmony in the Board of Trustees has been

unbroken, and they have given the President the benefit of their unhesitating and undivided support. To make agriculture the special but not the exclusive subject of instruction, to give every student a good general education, while those who desire it may devote a large portion of their time to the science and art of tilling the soil, is one of the main objects of the college; but it desires to do more. It aims to diffuse some scientific knowledge of agriculture among the community, to add dignity to the calling of the farmer by allying science with industry, to send young men to their homes impressed with the conviction that they may be as useful, as honorable, and as happy in the cultivation of the soil, as in the walks of commerce or in the practice of law or medicine.

The WESTERN MARYLAND COLLEGE is in a very satisfactory condition. It is the only College in the State in which young men and young women are received on equal terms and afforded equal advantages. The president reports that "all the scholarships provided for by the State have been availed of except the one for the Second Senatorial District of Baltimore City. The scholars have all given the required bond, and have made good progress in their studies, and bid fair to become useful teachers if they be spared to complete their course."

The visitors and governors of WASHINGTON COLLEGE report that during the last scholastic year, "there were thirty-three students in regular attendance upon the College classes besides a lecture class of eight, who received regular instruction from the College, thus making a total of forty-one students. The nine county scholars provided for by the Act of 1856, chapter 219, and the six provided for by the Act of 1874, chapter 282, were all filled by creditable students who received tuition, board, books and stationery free of charge, and five indigent scholars, in addition, have received tuition free of charge. Since the commencement of the present term, the county scholarships are all again filled, and there are indications of a considerable increase in the number of students. The discipline and management of the Institution continues to be

eminently satisfactory to the visitors and the College is steadily growing in public favor."

The JOHNS HOPKINS UNIVERSITY is now in the course of its fourth year of instruction. There are at the present time thirty-two instructors of various grades, and one hundred and forty-five students. There are twenty fellowships open to students from any part of the country and a larger number of scholarships, giving free tuition, open to young men from Maryland, Virginia, North Carolina and the District of Columbia. Of the present students, eighty-six are from Maryland; the remaining fifty-nine come from twenty-two States of the Union and from three foreign countries. Graduate, under graduate and special students, are received and instructed according to their various requirements. The degrees of Doctor of Philosophy and of Bachelor of Arts have been conferred upon a small number of students who have passed the requisite examinations. Equal care is bestowed upon the scientific and literary departments. Instruction is given in Greek, Latin, French, German and English, as well as in oriental languages, in logic, philosophy, history and political science. The higher mathematics have been taught to students who are disposed to go far beyond the ordinary limits of a college course. In the chemical, physical, and biological laboratories, ample arrangements have been made for instruction in chemistry, natural philosophy, zoology, botany and physiology. The scientific apparatus has cost nearly \$30,000; the library nearly \$25,000. More than 250 literary and scientific periodicals are taken in the reading room, which stands open to the students from 9 A. M. to 10 P. M. Courses of lectures by resident and non-resident professors have been open to the public during a considerable portion of every year. In the second year a teacher's class in physiology was instructed by Dr. Martin; in the third year, a teacher's class in zoology was taught by Dr. Brooks, (both involving the constant use of the microscope); and during the present year teacher's classes in early English and in Mathematics have

been promised. The Chesapeake Zoological Laboratory has been maintained for two successive summers in order to study the marine life of the waters adjacent to Maryland. Four scientific periodicals are issued under the auspices of the University respectively devoted to mathematics, chemistry, biology, and philology. Every exertion is made by the authorities of the University to keep informed in respect to the progress of education in this and other countries, and to adopt the experience thus acquired to the needs of our own State at the present time. The President and Professors desire to be in hearty co-operation with all the other educational agencies of the State.

The MARYLAND INSTITUTE for the Promotion of the Mechanic Arts, has stepped into line as one of the valuable educational auxiliaries of the State. The importance of Drawing as a branch of elementary education has long been acknowledged in theory, but there has been much difficulty in reducing the theory to practice on account of the lack of teachers. This obstacle is now in a fair way of being removed. Classes for instruction in every department of drawing and painting have been opened at the Maryland Institute, and are attended by large numbers of young persons. Special attention is given to teachers (of whom a number attend on Saturdays), and the course of instruction is so arranged as to prepare them to teach others thoroughly and successfully. Considering how much the State has to gain from the prosecution of industrial art, it is reasonable to expect that this enterprise will be encouraged as it deserves. The interesting and valuable report of Hon. Carroll Spence, chairman of the committee of the School of Design, who visited Philadelphia, New York and Boston on a mission of inquiry into the progress and methods of art-education in those cities, shows very clearly the vast importance of this subject to our material interests; and encourages the hope that as Baltimore has had in point of time the first, and in point of numbers the largest art-school in the country, she is now about to have the best and the most useful.

THE STATE NORMAL SCHOOL continues to perform satisfactorily the work for which it was established. The graduates are much sought after, as teachers, and they aid in diffusing the principles of the "new education" throughout the State. Many students who have not completed the course of instruction also find employment as teachers. Most of them give satisfaction to their employers, but the school should be held responsible for its graduates only. Since the organization of the school, in 1866, there have been 222 graduates (not reckoning a small number who received primary diplomas; and of these, 177 are now teaching; 17 (ladies) are married; 10 are dead; 4 (gentlemen) taught for several years, and then went into other employments; and one (lady) gave up teaching on account of ill health. The remaining 14 are temporarily unemployed for various reasons.

The number of students (including graduates) who are known to have taught not less than two years after leaving the Normal School is 566. Their names are published in the annual catalogue of 1879.

In order to accommodate teachers whose schools close about the middle of April, a short summer session was held, beginning May 1st, and ending June 15th. It was attended by twenty earnest and enthusiastic teachers, and the results were such as to encourage the Faculty to continue the experiment.

It is a COMMON COMPLAINT among half educated people, and it is re-echoed by some theoretical educators, that our common schools teach too many things. In a certain sense this is true; but in a deeper sense it is the reverse of the truth. Our common schools might be raised to a higher level than they now occupy, and yet teach nothing but reading, speaking, writing and arithmetic. It is not necessary to teach spelling as a separate art. He who has been taught to read properly will be able to spell all that he has read; and more is useless. When we teach a person to read, we teach him the art of getting knowledge from a printed book. He has not learned to *read*—he may have learned the names of words—till he has

acquired this art. But an art is acquired by practice. He must therefore, practice the art of acquiring knowledge—I do not mean the art of reciting words, which is quite a different thing—from a printed book. Now on what subjects shall he practice this art? Can there be anything better, more interesting, than a book containing information about this world in which we live (geography); about the people who have lived in it (history); about our own bodies, (physiology); about right and wrong (morals)? We are told that these subjects are out of place in elementary schools; but we reply, if children are to be taught to read, they should be taught to read something useful, and this art cannot be acquired without practising on real subjects. Between school reading and real reading there is as much difference as there is between a dress-parade and a hard-fought battle. Again everyone acknowledges that children should be taught to speak correctly. But “speaking correctly” is another phrase for the art called “grammar,” which also can only be acquired by practice. Writing is taught for the purpose of enabling us to express our thoughts on paper. If we stop short of this we merely climb a staircase without entering the room. Writing, so as to express thoughts is another art—Composition—which like the rest, can only be acquired by practice. Not to speak of arithmetic, about which, curiously enough, there is no dispute, we see that all, and more than our common schools teach, can be embraced in the traditional three R’s. How then can it be said, in any sense, that the schools teach too much? They (I am speaking of the least progressive among them) teach too much spelling, too much naming of words, too much memorising of words, too many technical definitions in grammar, too many unrelated and unretained facts in geography and history, too many intricate, perplexing and comparatively useless processes in arithmetic. It would be better to have three R’s taught in the way I have suggested, by a zealous, intelligent, sympathetic teacher, who would bring his mind into contact with the mind of his pupils, and develop thereby

the "living fire of thought," than a whole Cyclopedia taught by a stupid book-worm or a rigid pedagogue of the lesson-hearing school.

The instruction of our common schools should enable one who has attended them from his birth to his sixteenth year to understand what he reads, to form an independent judgment on questions which he understands, to express his thoughts correctly both in speaking and writing on subjects within the range of his knowledge, and to refrain from expressing or forming an opinion about matters of which he has not sufficient information.

FIRST LESSONS IN BOTANY.

BY G. L. SMITH.

XV.—VIOLETS.

Teacher.—One of the earliest and best known of our spring flowers is the beautiful little *Violet*. It grows in such abundance everywhere that you cannot fail to find it. Do not mistake the *Hepatica* for it, as people often do. How will you distinguish one from the other without examining them closely?

Pupil.—The flowers are not of the same color or shape.

T.—Generally, the *Hepaticas* are a shade of blue while the *Violets* are more of a purple, but the colors of both vary so much that they are frequently just alike, so that this alone would not be a sure guide. The flowers are very different in shape, but you would have to examine them closely to see that difference. Is there anything else by which you could distinguish them?

P.—The *Hepatica* has a three-boded leaf while that of the *Violet* is all curled up.

T.—Yes, the shapes of the leaves alone, will enable you to distinguish them at a glance. Spread out the violet leaf and tell me what shape it is.

P.—It is heart-shaped (*cordate*) at the base, and the margin is broken with little notches.

T.—Leaves which have the blade rolled inward at the base so as to resemble a hood (*cucullus*) are called *cucullate*. The margins of these are said to be *crenate*, because they are notched. Describe one of the scapes.

P.—It is somewhat four-sided and smooth, except about half way up where there are two little scales.

P.—The scape of mine, besides having the two scales is quite hairy, and it bends back close by the flower.

T.—Some of these, I collected in the woods, where the soil was very rich, and the parts are all quite smooth, (*glabrous*) while the others, which I found on the roadside, where the soil was very poor, are covered with fine white hairs; so you are both right. The two little scales, which you notice, are bracts, since they are on the scape. How many flowers are there on each scape?

P.—There is but one flower on a scape.

T.—Describe the whole flower?

P.—It is perfect, complete, irregular, and is nodding.

T.—The flower is very irregular in all its parts, but let us first examine the calyx. How many sepals are there?

P.—There are five sepals.

T.—What is their shape?

P.—They are ovate and fastened to the receptacle by their sides

T.—The sepals extend beyond the receptacle forming an ear-shaped lobe, that is, they are *auriculate*.

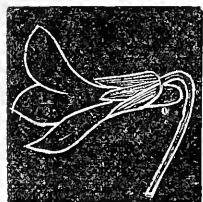


Figure 3.

Notice that two of them are spread apart for the spur of the corolla to pass through, as shown in Figure 3, and that three of them overlap the other two. How many petals in the corolla?

P.—There are five, counting this one with the spur on it.

T.—Are the four petals, that have no spurs, alike in every other respect?

P.—No, the two next to the spurred petal are larger than the other two and have little tufts of white hairs on the inside near the claws.

T.—The two *lateral* petals are *bearded*. What color are they.

P.—They are white at the claws, and a little above they are yellow with dark purple stripes, and the upper parts are all purple.

T.—Pull off the sepals and petals and see how many stamens there are.

P.—There are five very curious looking parts that surround the pistil and are joined together at the base. I suppose they are called stamens, but they have no anthers.

T.—Pull these parts off, one by one, and see if they are all alike.

P.—Oh! the anthers are inside next to the pistil, and two of the stamens have projections on them like the spur on the petal.

T.—When the anthers face inward like these they are called *introse* anthers. The filaments in this case are very broad and extend a little above the anthers. Fig. 4, (1) shows the stamens in position with the sepal and petals removed, and (5) the inner side of one. On which side of the flower are the spurred stamens?

P.—On the lower side, just where the spur of the petal was.

T.—These spurs extend into the spur of the petal and drop there the nectar which they secrete, for the spur of the petal forms a



Figure 4.

good nectary. These spurs of the stamens serve as a means of distributing the pollen; for the insect, in his anxiety to

get the nectar, presses against them and they act as levers to bend back the stamens and expose the anthers which are otherwise concealed. Some of the pollen adheres to the body of the insect and will stick to the next stigma he comes in contact with. Now remove the stamens and describe the pistil.

P.—The ovary is three-sided with a groove on each side, and has a club-shaped style. The stigma turns to one side.

T.—Then how many carpels is the ovary composed of?

P.—There must be three carpels.

T.—Cut the ovary across transversely, as shown by the dotted line in figure 4 (2) and you will see (4) by using your microscopes that each groove on the outside marks a projection on the inside to which the ovules are attached. These projections, which form ridges the whole length of the carpels, are called *placentæ*, and because they are on the walls of the carpels they are called *parietal placentæ* (from *paries* a wall.) The seed are attached to these parietal placentæ and when the ovary opens, it does so by splitting down at the corners, thus forming three *valves* as shown in figure 4 (3). Make a vertical section through a whole flower, splitting the spur of the petal into two parts and you will find as in figure 5, that the

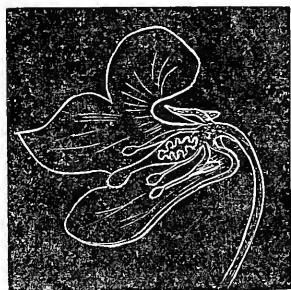


Figure 5.

stamens are attached under the pistil. For this reason they are called *hypogynous*, from two Greek words, which mean *under the pistil*.

How late do violets keep in bloom?

P.—I have never seen them after May.

T.—The flowers which we have been examining do not generally bloom later than May, but if you will look at some of these plants in June or July, you will find on them what appear to be buds. These are called *cleistogone* flowers and have no petals; but they are perfect flowers and produce more seed than the petalous flowers do.

This violet which we have been examining is called *Viola cucullata*. It is the most common of all violets and grows

everywhere; in dry and in moist places. There is a very common yellow violet which grows in rocky places, *Viola rotundifolia*, and another white violet, *Viola blanda*, which grows in swampy places. Among those cultivated, are the Pansy, (*Viola tricolor*) and the common sweet violet, *Viola odorata*. The Pansy is *caulescent*, (i.e. has a visible stem) and has very conspicuous stipules, but no cleistogene flowers since it is only the acaulescent species that bear these. The petals of the Pansy are very much enlarged by cultivation, and the colors become strangely mixed, but we cannot dwell upon their peculiarities. Now let us put the analysis of *Viola cucullata* on the black-board.

ANALYSIS.

PLANT.—Perennial, acaulescent herb, six to twelve inches high.

ROOT.—Perennial, axis branching into fibres.

STEM.—Subterranean, arhizome.

LEAVES.—Radical, on long petioles, cordate, cucullate, palmi-veined, crenate, stipulate.

INFLORESCENCE.—One flowered scapes, two bracts.

FLOWER.—Perfect, complete, nodding.

CALYX.—Irregular, green, persistent.

SEPAIS.—Five, ovate, auriculate.

COROLLA.—Irregular, purple, with claws white and yellow.

PETALS.—Five, lower one spurred.

STAMENS.—Five, hypogynous, two with spurs, filaments broad, short, united at base, extending beyond anthers. Anthers introse.

PISTIL.—One, stigma turned one side, style club-shaped, ovary three-sided, one celled, three valves, ovules many, brown, attached to parietal placentæ.

THE California teachers have requested the State Superintendent to take steps to have a chair of pedagogics established at the State University.

FIRST LESSONS IN AGRICULTURE.

COMPOSITIONS OF CULTIVATED CROPS.

II.

29. Every plant has two distinct groups of bodies within its structure, and these may be distinguished as *organic* and *inorganic* matter.

30. If any vegetable matter be carefully burnt, by far the greater portion disappears in the form of smoke, but a portion remains behind in the form of *ash*. This ash consists of mineral matter, and it is known as the *inorganic* matter of plants. When this ash is analysed it is found to consist of a large number of different substances, which are present in different kinds of plants in very different proportions. One variety of plant is found to contain more of one material than another kind of plant, and the total quantity of ash also varies. Taking the entire range of cultivated crops, we find that, with one exception (24) all the inorganic substances named as present in the soil (26) are taken up by plants and built into their structures. It is also known that plants take up this inorganic or mineral matter with some regularity, selecting only that which they require, and refusing to use that which is not desirable for their growth.

31. That portion of the plant which is burnt off is known as the *organic* matter. In the plant it exists in a great variety of forms, but these have been grouped into two classes—those which contain *nitrogen* are called *nitrogenous* bodies, whilst those which do not contain nitrogen are called *non-nitrogenous* bodies. This is a distinction which must be carefully remembered, for these organic substances are not only distinguished by this difference in their composition, but the presence or absence of nitrogen also *determines the work they can perform*.

32. The following is a list of the principal substances which constitute the organic matter of plants:

Non-nitrogenous bodies.—Starch, gum, sugar, cellulose and woody fibre and oil. *Nitrogenous Bodies*.—Albumen, fibrin

(gluten), and casein (legumin). The *non-nitrogenous bodies* are all composed of the three elements—carbon, hydrogen, and oxygen. Because they contain carbon, they are often called carbonaceous, but it is more convenient to describe them as non-nitrogenous. The bodies named in the *nitrogenous* group contain carbon, hydrogen, and oxygen, but they also contain *nitrogen*, and hence the name which distinguishes them.

33. *Starch* is a white granular body very abundant in vegetation, especially in corn and root crops. If you place a little wheat flour in a fine gauze bag, and wash it in a glass, the water quickly assumes a milky appearance. In a short time a white deposit is formed in the glass, and the water has again become bright and clear. The sediment thus obtained is *starch*, which has been separated from the wheat flour. If the bag were now opened, a glutinous mass would be found, in appearance something like soft threads of india rubber. This is the gluten of wheat. *Gum* exists in plants generally in a liquid condition, but we occasionally find it thrown out on the surface in a more or less hardened and transparent form, especially in the case of fruit trees, when the bark has been injured. *Sugar* is also found in vegetation in a liquid form. In the well known sugar-cane, sugar-beet, and sugar-maple, it is found in great abundance, and from all of these sugar is obtained for the public supply. It is present in our cultivated plants even when not in sufficient quantity for it to be separated for use. It has many important duties devolving upon it in promoting the growth of the plant, and its passage through the plant, mingled with the sap, enables it to perform these duties. *Cellulose* is so called because it is the matter of which the cells of plants are constructed, and it is sometimes known as cellular matter. It varies very much in its firmness and strength. When first it is produced in the plant, it is excessively tender and fragile, but as it becomes strengthened by growth so it gradually becomes more rigid and tough, and at length assumes the form of *woody fibre*. These bodies are very similar in composition, and are capable under certain

circumstances of passing from one form to another. It is worthy of note that although the quantity of carbon varies slightly, the weight of oxygen in each is exactly eight times the weight of the hydrogen. *Oil* is found in large quantities in the seed of some of our cultivated plants—such as linseed, hemp, and cotton seed; in smaller quantities it is found in the grain of wheat, barley, oats, and other varieties of corn.

34. The three *nitrogenous* bodies are exceedingly similar to one another in composition. It has been already stated, that they not only contain carbon, hydrogen, and oxygen, as did the several bodies of the other group; but they also contain *nitrogen*, and because they contain nitrogen, they are called *nitrogenous*. They are also called *albuminoids*, after the name of their leading representative, *albumen*. This substance occurs nearly pure in the white of the egg. It exists also in the juice of plants, especially in corn and “roots.” The *gluten* which is separated from the flour of wheat in the manner described (33), is largely composed of *fibrin*, an albuminoid which occurs in blood, from which it is readily separated by gently beating the fresh blood with a few twigs. Little threads or fibres will soon attach themselves to the sticks, and these will consist of the fibrin of the blood. We shall hereafter see that fibrin, or gluten, is an ingredient which largely determines the value of food. *Casein* occurs mixed with fats in the curd of milk; it is also found in peas, beans, etc., in which case it is sometimes called *legumin*.

35. We may now proceed to notice briefly the sources from which plants obtain those substances which we find them to contain. It is not difficult to see that the inorganic matter is obtained from the soil, because there is no other source from which these materials can be obtained. It is also well known that *solid matter cannot enter into a plant* so long as it retains its solid form; but it may be received *when it has become a liquid*, by being dissolved in water, or when it has taken the *form of gas*. It may there be taken as a rule, that the *inorganic matter* in plants is obtained *only from those portions of*

the soil which are soluble, or capable of becoming soluble. There are, however, two bodies—carbonic acid and ammonia—which are of necessity associated not only with the inorganic bodies, but are also present with the organic group. They are, moreover, to a certain extent exceptional, for plants not only receive these—and water—with the soluble matters obtained from the soil, but they also receive them from the atmosphere.

A SIGNIFICANT FACT.

IN a New York paper, recently, there appeared an advertisement for twenty-five skilled workmen, which was answered by *one* applicant. About the same time another card was published to the effect that *one* amanuensis at a salary of \$5 per week, was wanted, and for the latter position there was over *one hundred* applicants. This is a very significant fact, says an exchange, and one which should be born in mind by parents all over the country. The growing dislike for manual labor on the part of our young men and a corresponding love for positions where their work does not antagonize with an unruffled shirt-front and a stiff collar are everywhere becoming visible, and in no instance are their evil influences upon the business interests of a community more fully illustrated than in the one mentioned above. Parents should teach their children that hard hands and sunburnt faces do not detract from the respectability or the social standing of an individual; that a good mechanic is more worthy of emulation than a third-rate lawyer; that the merit lies not in the occupation that a man follows, but in the man himself, provided he is competent and willing to discharge his duties, and that under any and all circumstances "honesty is the best policy."—*Exchange.*

EDITORIAL CORRESPONDENCE.

MILFORD, DEL., DEC. 12, 1879.

Thus far on my way home after spending ten days among the schools of the three lower counties on the Eastern Shore: Wicomico, Somerset and Worcester. It is Friday night and I have just returned from a Teachers' Institute, which is now in progress in this little town. I must confess to have had a certain curiosity (not unpardonable, I hope) to know what kind of "Institute" could be gotten up under the shadow of the wings of the "Blue Hen." My curiosity was gratified. The Institute was no uncertain experiment, but evidently an established and cherished Institution. About one hundred and thirty teachers were present, in fact all the teachers of the county, with one or two exceptions. And they were live teachers, too; prepared not only to listen, but to do their own share of the active work. It was a surprise, but a very pleasant surprise to me, to hear the latest phases of educational principles and methods discussed with intelligence and discrimination by the teachers of such a conservative old State. The Governor sat on the platform during the entire morning and afternoon sessions, and was evidently both interested and pleased. On his right was the State Superintendent of Education, and on his left the President of Delaware College. "A three-fold cord is not quickly broken." The progress of the public school system of Delaware may not be very rapid, but all the indications are favorable to continuous growth and permanent extension. The interest taken by the citizens in the proceedings of the Institute was a cheering symptom. The hall, holding four or five hundred persons was comfortably filled during the day, and uncomfortably crowded at night. All the teachers were hospitably entertained without expense; and the writer, being a stranger, was "taken in" also. He will long cherish the recollection of this delightful visit.

During my ten day's sojourn on the Eastern Shore of Maryland, I had but seven days of active work. In that time, I visited twenty-three schools and examined about fifteen different classes. There were all kinds of schools, high and low, white and colored; good, bad, and indifferent. The most promising classical culture was found in one of the high schools of Somerset County. The translation of Cicero, Xenophon and Homer in this school was better than most of Freshman work. It is pleasant to know that there is at least one sunny spot in Maryland where the flowers of classic learning are in no danger of dying out. My principal business was with the high schools, but knowing that good high schools are only possible, under our system, as the natural development of good primary schools, I seized every opportunity of looking into the latter, and gave them as much time as could be spared. It may be a foolish or a weak enthusiasm that prompts me, but

I cannot help thinking that a well-conducted primary school is one of the loveliest sights on earth. I admire it and enjoy it, as I would a picture or a poem. I saw at least one such in my travels, and one quite the reverse. Let me describe them.

A little frame school-house, eighteen feet by twenty-four, built on the road side. A group of happy-looking children around the door, when a little tinkling as of a silver tea bell is heard, and the merry faces disappear. I am about half a minute late when I enter. The teacher is at her desk, calling the roll. It is not a tedious operation; there are but thirty or forty names on it. Then a few verses of the Bible are read, and a few questions asked during the reading, evidently to make sure of the pupils' attention, and nothing more. The reading over, every head bowed down, and the Lord's Prayer was repeated in concert, in a low tone, but with distinct articulation. Then the work of the day began; and I had leisure to observe the school and its equipments. The furniture was of the cheapest kind,—unpainted white pine, I think, but unblemished by ink or jack-knife. The floor was scrupulously clean. In the centre was a wood-stove well polished, and by the side of it the wood-box, neatly covered with wall-paper. The walls were white, and the windows (which were furnished with blinds, made, I have no doubt, by the teacher herself) were bright and were lowered about three inches. A clean, long towel hung in one corner. The black-board surface was limited, but was in good condition; two wall-maps and a small globe completed the outfit. There was nothing about the place to distinguish it from any of the hundreds of similar schools in the State, except the evidence of a *Presence*—a watchful eye, a dexterous hand, a provident mind. The teacher was young, not long out of her teens; tall, graceful, gentle, she moved up and down the narrow passages with all the dignity of a queen, but with all the happiness of a mother. Seeing her then and there, with the light of thirty happy faces reflected on her countenance, you would have called her beautiful, though, under other circumstances, you might have objected to using so strong a word. The children were mostly young (the "winter pupils" had not yet come in), but the order was perfect and spontaneous. There was no outward sign of "government." There seemed to be but one mind in the room, and that was the mind of the teacher. Whatever chord was struck vibrated in unison with that fundamental note. Her voice was low and sweet (an excellent thing in women) but without a trace of indecision. The obedience of the children was instinctive and unconscious. She talked about the subject matter of a lesson, just as she would converse about the weather or the village gossip; and asked questions about grammar or geography just as she would have inquired about the health of a neighbor, or the approaching wedding of a friend. There was nothing of the traditional "school-marm" about her. She entered fully into the feelings, thoughts, habits, and needs of the scholars; and they

sympathized, to the extent of their ability and experience, with her. She did not seem to keep school, but to be the head of a quiet, loving, orderly, industrious family.

A few miles east I saw a very different kind of a school. The room was large and dirty. The pupils were small and noisy. The teacher—well there was no *teacher* in that school, but there was a lady who occupied the teacher's desk, and drew the teacher's salary. But she did not *teach*, because she did not know how. She tried her best, I am sure, poor woman; and the best was very bad. As I entered the room, a spelling class was struggling to get into line for recitation. The boys pushed and jostled; the girls were crowded up and down; the teacher remonstrated and scolded; finally comparative order was obtained. A kind of line was formed, twisted at one point and looped up at another, but about as well-made as usual, and the lesson went on. When number one had spelt his word, he considered himself in "place rest" till the words had gone round the class and returned to him. Of what was done by the class in the interval he had no notion. And so with the rest; each thought (if indeed he did think) of his own question only. Externally it was a class recitation; in effect it was merely individual responses to one or two questions each. After spelling came "Tables" with the same class, and the "tables" was worse than the spelling; for in addition to the disorder, it was plain that not one of the pupils knew any more about the meaning of what he was saying than if he had been speaking in an unknown tongue. While these recitations were going on, the boys at their seats were "going on" too, not with any legitimate occupation, but with what Satan finds for idle hands to do.

"Which of these teachers received the larger salary?" The second one. "Which of them had the longer experience?" The second one. "Are there many such schools in Maryland?" There are still a few left of the same sort.

A COMMITTEE of Wisconsin teachers recommend that no State certificate be granted to any person except upon examination, and then not until after he has successfully taught for at least five years.

THE MASSACHUSETTS State Board of Education has lately been investigating the matter of District Superintendency, and all the answers to inquiries addressed to other States have shown the satisfactory result of such supervision.

THE INDIANA teachers propose to organize a mutual benefit association, as there is "no preparation by the State or otherwise for the support of superannuated teachers, or those who have been broken down by earnest and faithful work in the school-room."

PUBLISHER'S DEPARTMENT.

THE PUBLIC SCHOOL ASSOCIATION of Kent county will meet at the school room in Chestertown, on Friday, the 6th of February, at 10 o'clock, A. M. The questions for discussion are,—“Should the teacher be held responsible for the intellectual growth of the pupil?” Second—“How should we dismiss school?”

DR. TOURJEE has put forth such an attractive programme for his great Summer Excursions to Europe, that his ranks are likely to be filled several months in advance of the dates of departure. The tours will be made during the Summer vacation, an especially favorable time for teachers, students, and others. There are also to be supplementary tours of Egypt and the Holy Land, with visits to all the leading points of Biblical interest. Many new points in Europe are also to be visited. See advertisement.

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Journal of Speculative Philosophy.....	3 00	“ “	3 50

BOOK NOTICES.

MISTAKES IN TEACHING, by James Hughes, inspector of Public Schools, Toronto, Canada (*W. J. Gage & Co, Toronto, and Eldridge & Bro., Philadelphia.*)

This is one of the most readable books of the kind that we have yet seen. It is evidently the fruit of much careful observation and a sound philosophy. Even old teachers may learn something from it, or at the least may have the satisfaction of getting their theories confirmed and their practices approved. But for young teachers, we know of no book that contains in the same compass as much matter directly bearing on their work, and capable of being immediately utilized. They cannot make a better investment of fifty cents.

THE TEACHER'S HAND-BOOK OF ALGEBRA, by Dr. J. A. McLellan, High School Inspector for Ontario (*W. J. Gage & Co., Toronto, and D. Appleton & Co., New York.*)

This book is intended to supplement the elementary text-books in common use. It is neither intended for young beginners, nor for advanced students; but will be found useful to teachers who desire to obtain a thorough grasp of the subject, and to learners who wish to make preparation for an extended course of algebraic study. The sections on Horner's Methods, the principle of Symmetry, the Theory of Divisors, Factoring, and Simultaneous Equations contain much that is not to be found in our ordinary text-books, and yet without which many modern algebraic processes are unintelligible. The value of the book is greatly increased by the very large number of examples given to illustrate the various principles and formulas; the author evidently believing with the reviewer that expertness in algebraic calculations comes in large measure by the fingers.

THOMAS K. BROWN'S ELEMENTARY ALGEBRA (*Porter & Coates, Philadelphia.*)

This is a kind of "Algebra made easy," and has the usual merits and demerits of books constructed on that principle. The obstacles have all been carefully removed; the road has been graded; rails have been laid down, and the young traveller pursues his journey without a jolt or jar. Whether the place which this road leads to is worth visiting is another question;—we only say that the journey has been made easy.

THE COMPLETE ARITHMETIC and ELEMENTARY ARITHMETIC, by Albert N. Raub, Principal of the Central Pennsylvania State Normal School (*Porter & Coates, Philadelphia.*)

Are the work of a practical teacher who not only knows his subject, but knows how to present his subject in the most attractive manner to the mental eye of the learner. It is no slight recommendation that there are but two books in the series. Let us hope that before long somebody will have the courage to put all the Arithmetic that is needed in common schools into *one* volume. For the present we are grateful that the number has been reduced to *two*.

THE new edition of WELLS' NATURAL PHILOSOPHY (*Iverson, Blakeman, Taylor & Co., New York.*)

Will be highly appreciated by the large number of teachers who are familiar, from long use, with the old edition. The matter has been brought into complete accord with the latest discoveries in physical science; and the old arrangement (the best, indeed, for school purposes) has been retained. The illustrations are numerous and excellent. The insertion of questions for examination as marginal notes strikes us as being a very pleasing innovation, and calculated to assist both teacher and pupil.

THE SCIENCE OF EDUCATION, and THE ART OF TEACHING by John Ogden, A. M., Principal of the Ohio Central Normal School (*Van Antwerp, Bragg & Co., Cincinnati.*)

Will be welcomed by the profession as a valuable contribution to pedagogical literature. At once philosophical and practical, these volumes commend themselves alike to the theoretical investigator and the professional teacher. The former will find great general principals discussed with metaphysical acuteness; the latter will find the practical details of his every day life systematically arranged and satisfactorily explained. Even general readers will find much to interest them and stir them up to further inquiries.

GOODWIN'S ELEMENTARY GREEK GRAMMAR, (*Ginn & Heath, Boston.*)

This is the best school-book on grammar (English, Latin or Greek) that we have ever read. It comes very near our idea of perfection. In substance, and in arrangement; in what is inserted and what is omitted; in literary style and mechanical execution it leaves little to be desired. If the dust of this iron age has not entirely choked the genius of Grecian literature, such a book might lead to a revival.

THOSE who wish to see old truths presented in new and attractive shapes should read the "ELEMENTS OF PLAIN AND SOLID GEOMETRY," by G. A. Wentworth, (*Ginn & Heath, Boston.*)

The plan adopted of distinguishing by typographical artifices, the hypothesis from the *probandum*, the premises from the conclusion, and the breaking up of the solid page into detached clauses where relation to the preceding or the succeeding is indicated by the type—all this adds very much to the educational value of Geometry as an instrument of training.

THE *Popular Science Monthly* for February is excellent. Among the principal articles are: The Origin of Criminal Law; Saporta's World of Plants before the Appearance of Man; How Typhoid Fever is Conveyed; Maps and Map-making before Mercator; Hygiene in the Higher Education of Women; Artesian Wells and the Great Sahara, etc.

THE *Journal of Speculative Philosophy* (*G. I. Jones & Co., St. Louis*) for January, contains the following interesting articles: Kant's Critic of Pure Reason, criticised and explained by himself, translated by A. E. Kroeger; The method of Thought, by Needs Luthill; Prof. Caird on Kant, by Dr. J. H. Stirling; Kant's Deduction of the Categories, with special relation to the views of Dr. Stirling, by Edward Caird.

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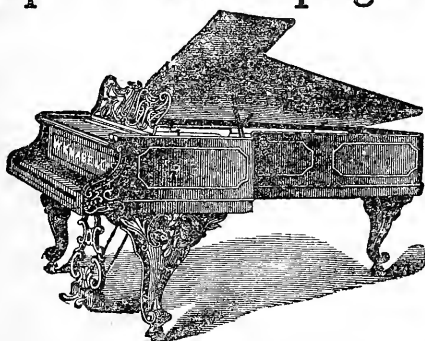
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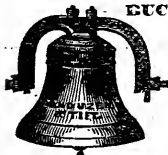
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THE
MARYLAND SCHOOL JOURNAL.
DEVOTED TO THE CAUSE OF EDUCATION.

Vol. VI.

MARCH, 1880.

No. 7.

FIRST LESSONS IN AGRICULTURE.

FERTILITY OF THE SOIL.

III.

36. In addition to the physical and chemical classification of soils, we have another point of character which is distinctly recognized and determined by the cultivation of the land, viz., the fertility or barrenness of the soil. We can explain by physical and chemical investigations, the causes which influence the productive powers of land, and in many cases these researches indicate the means whereby those powers may be increased or maintained. In the first place, a clear distinction must be drawn between those portions of the soil *which are capable of yielding nourishment* to vegetation, and those which cannot do so. *A soil may contain large supplies of every ingredient which a crop requires, and may still be unable to yield them to the plant.* The great truth must be fully realized, that it is *only that portion* of the soil which is *capable of being dissolved by rain-water which is available* as food. It is of no practical advantage to a growing plant, that the soil should contain food which will not be ready for use until the next year, or the next century. The life and growth of the plant are determined by the supplies which *are then ready for use, or coming into use.*

37. It has therefore been necessary to distinguish the inorganic matter according to its soluble condition. *Those portions of the soil which are ready for use*, or in other words, can be dissolved in rain-water, are known as the *active ingredients* of the soil; whilst *those which are not ready for use*, because they are not soluble in rain-water, are termed *dormant* or *sleeping*. The distinction between the two conditions is exceedingly simple; but the influence resulting therefrom is of the greatest importance. An analysis of a soil which represents the total composition of a soil, is of little or no practical value, *unless it distinguishes between that which can be used by the crop, and that which cannot*. The farmer wants to know what ingredients the land contains, which will be of service for the crop he is going to sow, and if an analysis leads him to rely upon all the substances in the soil being ready for his use, he will be deceived. For all practical purposes, a chemical analysis must, in the first place, separate the *dormant* matter of the soil from that which is *active*, and must thus inform the farmer what there is in the soil *which he can make use of*. Without this distinction being drawn, the chemical analysis of soils may be of scientific interest; but it will be calculated to mislead those who fail to distinguish between that which can be used, and that which cannot be used, or, in other words, between *the active and dormant* constituents of the soil.

38. Whilst the active ingredients of the soil are useful for the immediate requirements of vegetation, *the dormant ingredients* have also their duties to fulfill. These constitute *the reserve fund of the soil*, and secure its future fertility. A bad farmer may rob the land of very much of its active matter, and by frequent removal of crops from the land take away its immediate fertility, but he cannot take away that which is in a dormant condition.

39. It will be important to know *how this dormant matter becomes useful* for vegetation. *It is changed into the active con-*

dition in the following manner. You have seen that the rain-water and the frost, break down even the hardest rocks, and by their continued action they at length dissolve up much of the finely broken portions of these rocks. Exactly the same result is accomplished in the soil by exposing it to the air, rain, and frost, and by allowing the rain to pass into and through the soil; thus when *the soil* of a field is ploughed up roughly before winter, and *exposed to the air, rain, and frost*, it is not only broken up into fine condition, but the surface of the little fragments of the soil is so acted upon that *some portions become soluble in water*, and ready for being taken into the circulation of a growing plant.

40. We have already noticed the fact that plants draw their inorganic matter and also some of their organic matter from the soil. If this demand on the soil is continued without some return being made to the soil, it is clear that *the land will become exhausted*, and will not be able to supply the requirements of the crops. It will, therefore, not only become exhausted, but as a consequence *will become less productive*. The soil being the only source from which a crop can obtain its inorganic matter, exhaustion arising from any deficiency of this portion of the plants' food is quickly observable. It is desirable that you should realize what crops remove from the land, and this is shown in the following table.

41. *Inorganic Matter* removed from an acre of land, by average crops of the following kinds. (*Playfair.*)

	WHEAT.		BEANS.		TURNIPS		CLOVER.
	25 Bush. Grain.	2000 lbs. Straw.	25 Bush. Corn.	2800 lbs. Straw.	20 Tons. Bulbs.	6 Tons. Tops.	2 Tons. Hay.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Potash.....	7.49	18.21	22.63	89.17	125.73	75.95	52
Soda.....	.97	.90	6.68	2.69	22.98	16.23	7
Magnesia.....	3.07	4.11	5.03	11.24	12.27	9.27	35
Lime.....	.85	9.34	3.63	33.58	37.87	69.81	111
Phosphoric Acid....	11.47	8.15	23.67	12.16	31.11	27.87	20
Sulphuric Acid.....	.08	5.82	.61	1.83	42.26	36.56	13
Silica.....	.84	101.82	.72	11.84	11.66	2.58	10
Peroxide of Iron.....	.20	1.32	.35	—	3.71	2.58	3
Common Salt.....	.03	.33	.90	7.15	28.69	38.15	8
Carbonic Acid.....	—	—	—	—	21.71	21.	—
	25	150	63	168	340	300	259

42. These numbers may be taken as fairly representing the *inorganic matters generally removed* by these crops, but they will *vary according to the weight of the crop, and the character of the soil*. These figures must therefore be looked upon as giving only a general idea of the materials removed from the land. It would be difficult to remember all these figures, but they represent certain general facts which should be remembered.

43. We see that *different parts of the same plant contain very different quantities and varieties of inorganic matter*: for instance, the silica in the grain of wheat is about 1 lb. for each acre grown, whilst in the straw there is 100 lbs. and when you examine the straw of wheat you see the bright glassy coating which requires this silica. You also see that beans only require about 12 lbs. of silica per acre, whilst wheat required 102 lbs., and one lesson this teaches is that *different crops require different kinds of food*. If you notice the requirements of the turnip crop, you will see that an acre of turnips requires about 200 lbs. of potash, and nearly 40 lbs. of soda, whilst a crop of wheat only requires about 26 lbs. of potash, and scarcely 2 lbs. of soda. You must not lose sight of the fact that as different crops require different kinds of food, they therefore *draw from the land different kinds of inorganic matter*. By the removal of our various crops from the land, we remove in them large quantities of those inorganic matters which are necessary for keeping the land fertile, and one of the great objects to be accomplished in successful farming is to be able to do this, and at the same time *make the land more productive every year*. It is, however, quite possible for soils to be *rendered unproductive* by the plant-food they contain being removed, and *the land thereby becomes exhausted*.

44. Some soils are unable to grow crops by reason of their having some injurious matter present, such as some of the lower compounds of iron; salt, and acrid organic matter, all of which prevent healthy vegetable growth.

45. Other soils are unproductive because *their mechanical condition is unfavorable* for vegetable growth. The roots of plants may be *unable to penetrate a soil* because of its hardness, or the presence of stagnant water may have the same effect. A plant in sending its roots into the soil, requires not only that the roots shall be able to extend through the soil in search of food, but that the soil shall also be in a healthy condition. A supply of water is necessary for the roots, but a supply of air is equally necessary. When the soil is charged with an accumulation of stagnant water, the roots which come within its influence *are unable to discharge their functions* in a healthy manner, and the growth of vegetation is consequently very slow and imperfect.

46. Another condition of fertility is the presence in the soil of *all* the food which the crop requires. An abundance in the supply of one portion of the food does not compensate for a short supply of another equally important portion of the food. Hence the fertility of a soil is determined by the quantity of that essential food which is present *in the least proportion*, and not by that which is in great abundance. To illustrate this by a familiar example, a builder may have plenty of stone for the construction he intends to erect, but if he has little mortar his progress is soon stopped for want of a further supply. It would not assist him if you increased his supply of stone; he wants something else, and until this is ready for his use he can make no progress. It is the short supply of mortar which regulates his work, and not the abundance of stone. It is just the same with vegetable growth; the plant requires a variety of materials, and that essential material which is present in the least abundance regulates the crop, and not those which are more plentifully supplied.

47. The terms *good* and *poor land* have reference to the relative productive powers of land. In a good soil we have a combination of conditions favorable for the production of large crops—we have a soil with a complete supply of food, and it

exists in a condition favorable for vegetable growth, and we also have it situated in a climate suitable for the crop to be grown. Such a soil properly cultivated constitutes a good and fertile soil. If either of these conditions is wanting, then it ceases to be good and productive land. You will observe that no one condition is sufficient to make the land productive; the plant-food must be there, and under such circumstances that the plant can use it, the climate must also be favorable for the crops, and the soil must be well cultivated; but the absence of any one of these conditions renders the land unproductive and poor *for that particular crop*.

THE POWER OF MEMORY.

At one time when Wm. H. Seward was in the practice of the law he had a perplexing legal question, arising out of the settlement of an estate. Taking the papers with him to New York, he consulted Chancellor Kent, asking his opinion about it. The Chancellor listened, sat a few minutes in thought, and then gave his opinion in the matter. "But Chancellor," said Seward, "your 'Commentaries,' which I have carefully looked into, take the other ground. They say the contrary view is the correct one." "Do they?" said the Chancellor; "let's get down the book and see." The book was taken down, the passage read, and the Chancellor emphatically gave his decision. "The book is right. I may guess wrong now, but when I wrote the book I knew. Always go by the book in preference to me."

This anecdote goes to show that the memory of a great man, which every one will admit Chancellor Kent to have been, does not retain all that it had learned. It is frequently said that there are men who never forget anything that they have once known. But the probability is that no such man ever existed. There have been men of very remarkable memories.

Ben Johnson tells us that he could repeat all that he had ever written, and whole books that he had read. Themistocles could call by their names the 20,000 citizens of Athens. Cyrus is reported to have known the name of every soldier of his army. And it was said of Dr. Johnson, that he never forgot anything that he had seen, heard or read. Whether this was so or not no one of course could ever know, and he himself would have been unable to tell. The truth is, probably, that while some men may have remarkable memories in certain directions, and be able to retain at will what other men cannot, all men drop out of their memories much more than they retain. There is an old adage which says that "great wits have short memories," indicating that a very different idea than the one indicated by the instances given above was at one time prevalent. The case would seem to be this, that men of genius forget things of common concern, which make a strong impression in every-day minds, and are therefore retained by them, while the common understanding will forget the very things which impress the men of genius, and are therefore remembered by them. Memory can undoubtedly be cultivated, and by reading continually with great attention, and never passing a passage without understanding and considering it well, the memory will be stored with knowledge, which we can call upon when we want it.—*Exchange*.

CUTTLE bone is not bone at all, but a structure of pure chalk, once embodied loosely in all the substance of certain extinct species of cuttlefish. It is enclosed in a membranous sac, within the body of the fish, and drops when the sac is opened, but it has no connection whatever with the sac of the cuttlefish.

BLACK lead does not contain a single particle of black lead, being composed of carbon of iron.

FIRST LESSONS IN BOTANY.

BY G. L. SMITH.

XVI. TRAILING ARBUTUS.

Teacher.—It is almost time to gather *Trailing Arbutus*, for its beautiful, fragrant flowers are among the first that bloom in the spring. If you have never gathered it I hope that you will do so this year.

Pupil.—Where will we find it?

T.—Look for it in partially cleared woods, and I have generally found it more abundant on hill-sides which slope toward the North. It is a very modest little plant and clings close to the ground, so that you may have to scrape away the dead leaves to find it, and even when you have found the leaves, the flowers may not be visible, for they often hide *under* the leaves.

I have, here, some of the plants which I collected about two months ago, and you can see what kind of leaves they have.

P.—I didn't think that you could find it two months ago; that would be in the winter.

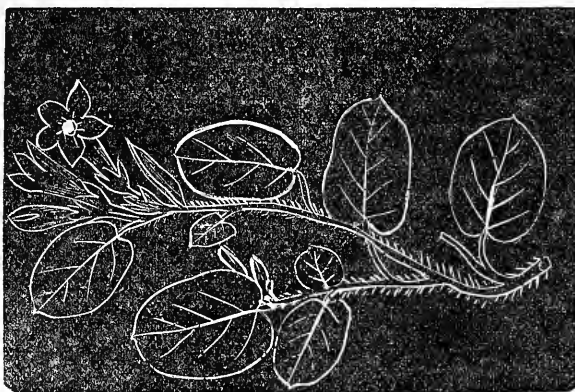


Figure 6.

T.—The leaves are evergreen and can be found at any time, but you will notice that there are no flowers on these plants.

The flowers are not in bloom until the last of March or first of April and sometimes even later than this. Give me a description of these leaves.

P.—They are netveined, ovate and cordate with entire margins.

T.—What color are the leaves?

P.—They are of a dull green color with rusty blotches on them.

T.—Do you notice that the midvein and the margins are covered with brownish hairs and that the leaves are tipped at the apex by a short, abrupt point? These are characteristic features. How long are the leaves and how are they arranged on the stem?

P.—The leaves are from one to two inches long, and are arranged alternately on the stem with petioles about one-fourth as long as the blades. The stems and petioles are also covered with brownish hairs.

T.—Here are some plants that I collected yesterday with the flowers in full bloom. Where are the flowers attached?

P.—They grow in clusters from the axils of the leaves.

T.—How many flowers in each of these axillary clusters?

P.—There are from three to five flowers in each cluster.

T.—Figure 6, represents an outline sketch of a branch of this little plant, and you can see that the flowers are near the ends of the branches, although they are axillary. Let us examine one of the flowers. It has a spicy fragrance something like the lilac, but much more delicate, and in this it differs from most of our wild flowers, which have no odor. It is perfect, complete, regular and symmetrical. Figure 7 represents one of the flowers somewhat magnified. Notice the



Figure 7.

three brownish bracts just below the calyx. They are sometimes very close to the calyx, but by turning them back, you will always find a portion of the peduncle between them and the calyx. Describe the calyx.

P.—The calyx is gamosepalous, five divided and free from the ovary.

T.—Look down into the tube of the corolla and see what is there.

P.—I can't see into the tube for it is nearly filled up with white hairs.

T.—Split the corolla down on one side and notice as you do so how waxy the petals are; then spread it out as in figure 8, and tell me what you find inside.

P.—In among the white hairs which nearly fill the tube of the corolla there are ten stamens with yellow, versatile anthers.

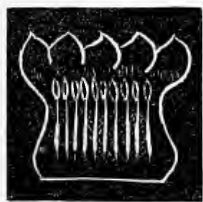


Figure 8.

T.—Where are the stamens attached?

P.—They are attached to the tube of the corolla and just above each point of attachment the filament is covered with white hairs.

P.—What is the use of all these white hairs?

T.—They line the tube of the corolla forming a wrap, like a soft white ermine cloak, to protect the essential organs from the cold weather, for they bloom before the weather gets warm. Do you see how the anthers are split open?

P.—Each anther has two longitudinal splits in it.

T.—These splits are called *valves* and are the openings to let the pollen out when it is ripe. You must notice these valves in the anthers of different flowers. They are not the same shape in all flowers. Tell me what you can about the pistil.

P.—There is but one pistil, but it has a five divided stigma and the ovary is covered with white hairs.

T.—Make a vertical section through the pistil and calyx as

in figure 9, (a) and then a section of the ovary at a point indicated by the dotted line in this figure. Figure 9 (b) represents the section magnified. How many cells are there?

P.—There are five heart-shaped cells.

T.—And how many ovules?

P.—Each cell has a great number of ovules in it.

T.—How are the cells separated.

P.—There are very thick partitions between them.

T.—These partitions are called *dissepiments* (from *dissepio*,

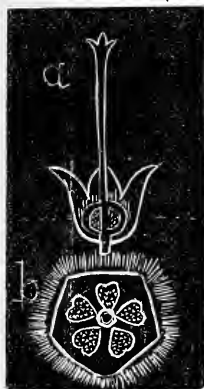


Figure 9.

to separate). They are double, and when the fruit is ripe, the dissepiments split and break loose from each other, thus allowing the seed to be scattered. This plant is known by other common names—such as May Flower and Ground Laurel, but the Latin name is *Epigaea repens*. The first word comes from two Greek words meaning upon the earth, and the second means trailing. It belongs to the very large family *Ericaceae*. Other members of this family

are the huckleberry, cranberry, checkerberry, laurel, wintergreen, pipsissiwa, azalea and Indian-pipe. Now let us write the analysis of the *Epigaea repens*.

ANALYSIS.

PLANT.—Perennial, covered all over with brownish hairs, found in woods under dead leaves. April and May.

ROOT.—Brown and fibrous, almost on top of ground.

STEM.—Brown, woody, trailing, covered with brown hairs, branching, ten to fifteen inches long.

LEAVES.—Evergreen, netveined one to two inches long, ovate, cordate, margins entire and lined with brownish hairs, abruptly tipped with short point.

INFLORESCENCE.—Flowers in axillary clusters of three to five.

FLOWER.—On short hairy peduncle, pink to white, delightful spicy fragrance.

BRACTS.—Three, brownish and hairy.

CALYX.—Gamosepalous, sepals five, free from ovary.

COROLLA.—Salverform, tube cylindrical, hairy inside, longer than calyx, pink or white, petals five, waxy.

STAMENS.—Ten, attached to tube of corolla, anthers versatile opening by two longitudinal valves.

PISTIL.—One, shorter than stamens, stigma five divided—style slender, with hairs at base, ovary five celled, many seeded.

THE MANUFACTURE OF SLATE PENCILS.

The process of making slate pencils is thus described by the *Stationer*: Broken slate from the slate quarries is put in a mortar run by steam, and pounded into small particles. Thence it goes into the hopper of a mill, which runs into a "bolting machine," where it is "bolted," the fine, almost impalpable, flour that results being taken to a mixing tub, where a small quantity of steatite flour, similarly manufactured, is added, together with other materials, the whole being made into a stiff dough. This dough is kneaded thoroughly by passing it several times between iron rollers. Thence it is conveyed to a table, where it is made into "charges"—that is, short cylinders, four or five inches thick, and containing some eight or twelve pounds each. Four of these are placed in a strong iron chamber or retort, with a changeable nozzle so as to regulate the size of the pencil, and subjected to tremendous hydraulic pressure, under which the composition is pushed through the nozzle in a long cord, like a slender snake sliding out of a hole, and passes over a sloping table, slit at right angles with the cords to give passage to a knife which cuts them into lengths. They are then laid on boards to dry, and after a few hours, are removed to sheets of corrugated zinc, the corrugations serving to prevent the pencils from warping during the process of baking, to which they are next subjected

in a kiln, into which superheated steam is introduced in pipes, the temperature being regulated according to the requirements of the article exposed to its influence. From a kiln the articles go to the finishing and packing room, where the ends are thrust for a second under rapidly-revolving emery wheels, and withdrawn neatly and smoothly pointed, ready for use.

WOMEN AS PRIMARY TEACHERS.

To advocate the superiority of woman's work in any department may seem presumptuous, when we are told by the "lords of creation" that men are chosen for the most responsible positions and receive the most liberal remuneration in every branch of industry, and that they are more artistic and are the acknowledged leaders in what has heretofore been known exclusively as woman's work, quoting as a single example—Worth, the Parisian mantua-maker.

While they present one example of man's superiority in woman's work, hundreds of cases may be quoted where women excel in what was known a few years ago as men's department. They are especially noted for their accuracy in telegraphy, type-setting and wood-carving, but in no sphere have they so completely displaced men as in the primary department of our public schools. Not a case in our own county can be cited of a man being employed in the primary department of a graded school.

Women are superior as primary teachers, because they make special preparation for that department. Many men enter upon the employment of teaching merely as a stepping-stone to something, in their estimation, higher. They do not intend to become permanent teachers, but teach only to replenish their exhausted funds, while they study some profession which will bring them more prominently before the world.

Normal training is utterly ignored, unless they intend to take charge of a graded school; then, of course, they must know something of school government, but any body with a tolerable education can teach (?) little children.

It is a well-known fact that children acquire more knowledge during the first five years of their lives than in any equal time in after years. Mothers are usually the only instructors during this period, and the maternal instinct generally teaches them how to supply the intellectual wants of their children, by placing before them a variety of objects, differing greatly in color, form and sound. Their curiosity is aroused, and their waking hours are devoted to looking at objects, playing with them, tearing them to pieces, and learning their names. In this way they learn the language of their parents and obtain vast stores of knowledge concerning the world around them. If the children are now sent to school and made to sit down, withdrawn from the world of objects in which they find so much interest and delight, confined to one or two special branches as reading and arithmetic, they will become dull and stupid, because they will neglect the senses God has given them.

Normal training teaches us to follow nature, and since women are more apt to take advantage of this training, they are certainly better fitted to teach young children than those who have never given nature a thought.

Women are superior as primary teachers, because they govern little children better. "Order is Heaven's first law," is one of the favorite maxims of men in every department. But there is such a thing as having too much order in a school. If children are so painfully quiet, they are either in mischief or kept still through fear of punishment.

Women are superior as primary teachers because they have more aptness in teaching. Instead of coming down to the level of the minds of children, men expect them to understand subjects which the untrained mind cannot grasp, and become impatient when they find the children making so little progress.

Children of all ages, but especially little ones, depend on the teacher for their interest in the school. In order to keep up this interest, means have to be used which seem very childish to men, so childish, that rather than employ them they

will go on in the old ruts until the children become wearied and disgusted with the monotony, and think if that is learning they want none of it. Children must have variety, and since the world is so full of objects which interest there is no reason why they should not have it. They are interested in anything they can see or handle, and by passing from the object to the printed name, they learn to read almost unconsciously.

Women are as fond of variety as children. When the interest in one thing fails, they are always ready to try something new; and although children only learn by constant repetition, women have the knack of bringing out the same thing in a variety of forms. By this change of form the interest is kept up, learning becomes a pleasure and school one of the happiest places on earth.

Will the ladies in the profession allow me a few words more? Since the work of the primary department is especially ours, let us enter into it with the right spirit. If we are thoroughly interested ourselves it is easy to secure the interest of our pupils. They like to be busy, so give them something to do. A slate and pencil or a piece of crayon and the black-board will furnish almost endless entertainment. What if at first they do make horses and pull engines, with all the steam on, down steep hills. They have made something and will take more interest in the next lesson. Make them so happy that they will always have a warm spot in their heart for their first school teacher.

Let us not enter into this work until we have considered the responsibility of training immortal minds. And above all, let us have the proper training, because mistakes made in early school life may do untold mischief.

“Oh! let not then, unskillful hands attempt
To play the harp whose tones, whose living tones
Are left forever in the strings. Better far
That Heaven's lightnings blast his very soul
And sink it back to Chaos' lowest depths,
Than knowingly, by word or deed, he send
A blight upon the trusting mind of youth.”

THE HANOVERIAN VILLAGE SCHOOLMASTER.

THE schoolmaster unites in one person the duties of sexton, grave-digger, and bell-ringer. All teachers must have passed an examination held by the State, for which they are prepared by some years' study at preparatory schools and a three years' course at one of the eight normal schools in Hanover. In order to enter these schools, the applicant must be eighteen years old and be able to pass an examination in the elementary studies. Teachers earn from one hundred and seventy-five to two hundred and twenty-five dollars a year. In E—— the teacher received eighty-seven cents a year from each of his one hundred pupils, fifteen dollars a year from the church for his services as sexton, besides fifty cents for each adult's and twenty-five cents for each child's grave dug by him. From the State he got eighty-two dollars, and from the village seven dollars and fifty cents a year, with six acres of good farming-land and a house. All the books and maps I saw were of the most old-fashioned sort, and the teacher was drunk whenever he had money enough to buy schnapps. The church consistory appoints and removes the village teachers throughout Hanover. Teachers are not considered socially equal to nor do they associate with ministers. With the teacher ends the list of village officers, and next come those communal servants for whom we in this country have no equivalent.—*From "Hanoverian Village Life," by WALTER NORDHOFF, in Popular Science Monthly for February.*

BURGUNDY pitch is not pitch, nor is it manufactured or imported from Burgundy. The best is a resinous substance prepared from common frankincense and brought from Hamburg; but by far the greater quantity is a mixture of resin and palm oil.

MY METHODS.

BY A PRIMARY TEACHER.

ON entering my school in the fall, my first effort is to gain the confidence of my little pupils. I make them feel that I am their friend and not a person to be afraid of. I talk to them, coax, and if necessary pet them a little. I endeavor to bring myself down to their level, sympathizing with their troubles, showing an interest in their plays, and deciding their disputes as justly as I can. The descent of the teacher is essential to the ascent of the pupil. You must become as one of them if you would lead.

I am careful as to what I say to my pupils. I never make any promises that I do not intend to fulfill to the very letter. This gives them respect for my word. I insist upon having the truth from my pupils; if I can't get it in any other way I coax it out. If a child is guilty of a fault, I have him acknowledge it, but I permit no pupil to tell the fault of another. I am not in favor of compelling little children to keep quiet. It is going directly against nature. Yet, when I call for order and attention, I am obeyed, and no talking is allowed during a recitation.

Do not think from what I have said that my pupils do nothing but play and talk, and that I coax and pet them all the time. Oh, no, we all work, and work pretty steadily too. School work should give pleasure, and what gives a child more pleasure than play? Therefore I call their work play, and, as much as possible, I make it seem as such, by constantly devising means to keep up an interest. I try to train my pupils in habits of neatness and politeness as well as in reading, writing, etc. I insist upon them coming to school neat and clean, keeping their books, desk and the floor in good order. I call their seats in school their little houses and tell them that they are responsible for their appearance. In reading I use the word "method." A child can remember the

form of a word as easily as that of a letter. I have conversations about the picture. This awakens observation and inquiry in the mind and diminishes the difficulty of getting pupils to read naturally. By talking about the picture, the pupils understand what they are reading about, and this is a great preventative against the unnatural, drawling style of reading so common in our primary grades. The lessons contained in the little books we now use are so interesting that the child is apt to commit them before being able to read. To overcome this I begin at the bottom of the lesson and have them name each word backwards. Then I arrange them promiscuously on the board and have the children name them. After assigning the next lesson I tell them to find out all they can about the picture, and tell me at the next lesson what they have discovered that was not in the book. In teaching spelling, I give the phonetic sounds first, the letters afterwards. This is a great help to reading. To interest my pupils in their spelling lesson, I sometimes let them play school; the one taking the place of teacher has a good drill in pronunciation, and the rest forget they are reciting, and enter into the lesson with great enthusiasm. In arithmetic I use the numeral frame, sticks, marks, etc. Have the children add, subtract, multiply and divide objects first. Then I have them commit the corresponding tables by *writing* them. I teach the *meaning* of the signs thus: $+$ means *and*, $-$ means *from*, etc. One might talk all day to little children about plus and minus, and they would not know what you meant. What does a child understand about two plus two equals four? But tell them that two and two are four, and they will soon get at the meaning of your words. Figures are used instead of marks, because they are more quickly made. The making of figures, etc., I teach by drawing. After my pupils are able to write the tables readily and correctly, I place them promiscuously, except the result, on the board. Let them find the result and put it in the proper

place. This pleases them and makes them proud of what they can do. I tell them the numbers that make other numbers, thus in full: $3 + 2 = 5$, $2 + 3 = 5$, $1 + 4 = 5$. I sometimes let them play at buying and selling. In writing, I begin with words. Write reading lesson when nearly ready for second grade. To assist them, I have a printed alphabet on the board and a written one immediately under it. They can then compare one with the other.

Children tire of reading, spelling and writing all the time; for a change I have other exercises that are just as important and beneficial. I pass around little sticks, (matches without their heads,) and tell them to form anything they can with them. After they have formed something. I have them draw it on their slates or on the board. The use of these sticks is to cultivate the eye, draw on the imagination, and cause them to invent.

Lessons in color: Colored cards, children's dresses, ribbons, etc.

Lessons in form: Balls, marbles, boxes, blocks—anything I can get—cheap.

It has been my experience when visiting, that it is best to leave when my friends are sorry to see me go, then I am sure of a welcome on my return. It is the same with little children. Never keep them at anything till they are tired, if you do they will not be glad to see the same subject return. Change often; do not keep them longer than fifteen minutes at any one thing, and not that long if they become wearied. Have a programme, follow it as closely as possible, but if the subject fails to interest, change till you find something that will.

Conclusion: Keep them busy and interested; encourage when you can, chide when you must. To bring out what is best in little children be kind and gentle, not cold and critical. The principle office of the teacher is to aid and encourage the efforts of the pupil. Become as much like a child as possible and you will be able to lead more easily and will not be obliged to resort to driving with a rod.

M. M. H.

THE QUINCY SCHOOL SYSTEM.

[From a speech delivered at Yonkers, N. Y. Reported for the New York School Journal.]

I HAVE left my work as a teacher with some reluctance to come here to try to help you to teach better. I take it for granted that you are all teachers—real teachers I mean, who are learning to teach. Ours is one of the greatest of all the arts—that of moulding the human mind so that it may be always progressive and acquiring more knowledge by thoughtful experience. The whole of the Quincy system, if there is such a thing, is that we, the principals and the teachers, are always trying to learn. You are teachers, and you should be most intensely interested in the foundation work. This is one of the things that I have against you. Words, have just one use—to recall ideas. Words properly arranged recall ideas and their relation. A word isn't a sign properly, but is a "recall." Children of five or six years have learned the elements of the language by a long and wonderful process. The method of gaining the oral language, I hold, is as perfect as it can be. You can find everything in the child's learning to talk that you need in order to teach it to read and compose. This perhaps is called a new theory in Massachusetts.

I hold, first, that learning to hear a language is the same as learning to read. It is two methods of taking in of thought. In both cases the idea is impressed on the mind. In other words, to learn how to spell is the same as to learn to talk. You must learn how to teach reading by studying how a child learns to speak. A word, again, is only valuable when it is associated with the idea of which it is the sign. The child, when it learns to talk, sees the object that causes a state of mental activity in which the word, as "dog" or "book," is spoken. Conversely, when the object is seen the word is suggested. The object arouses mental activity. The keystone of the whole art of teaching is the association of idea with the word. This is the main thing to be kept in view. Any

system without this is defective. The word is a secondary thing. It ought not at first to be analyzed, any more than the oral word is. Why, then, after five years of nature's method, should we change to another method when we begin to teach reading.

Reading is either recalling thought that has been lodged in the mind before or taking in new ideas by means of words or signs. Language can be taught objectively. I should use this set of objects before the child, and as I took up one I would write the name on the board. Let the child then point out the object and bring it to you. These objects are of the greatest use. The next step is to utilize free-hand drawings and sketches. Every teacher should be able to draw. The drawings can be begun on one day, and the story can be finished on the following day. Then pictures—from papers and old books—can be used to great advantage. They can be got in a thousand places. Then teach by conversation—another method of objective teaching. I would handle children, too, like human beings. I wouldn't tie them to benches and expect them to stare straight ahead. The treatment is simply barbarous. Let them come into the school-room full of activity, and you must turn this current into school work. Make them feel at home in the school. Let them have a good deal of freedom, and yet control them perfectly, if you can understand this. Gather the children around you in groups of ten or twelve, but don't make them toe a mark. Give them freedom of limb if you would have freedom of the mind. Then in your conversation use the words the meanings of which you want to teach them. Fill your minds full of fairy stories—Grimm's and others. Thank heaven we are throwing off the influence of the namby-pamby stories about boys who were drowned on Sunday. Tell the children, then, delightful stories. Then write out the skeleton, and let them fill in the stories.

No one can teach for an examination. If the examination is all that is thought of the dull boys have to suffer for the sake of the bright ones. You must have freedom of action

to do as you think best. We need a few martyrs in this cause. The thralldom is the same, whether it is brought about by the chains of customs or of school boards and superintendents. If a school is too large, then the necessity of the change is all the more urgent. Learning to read is learning a vocabulary. A word is learned when it instantly recalls an idea. This power to take in thought depends upon the word, and one's progress in this through life depends upon the extension of the vocabulary. I should have a vocabulary of words ranged in phonic order for reasons which I will tell you hereafter. When one hundred words with all their relations are fixed in the mind, the child has learned to read. No injustice is so great as that of putting hundreds of thousands of dollars in the high schools, while the primary schools are slighted. The work of the lowest grade, requires more culture and intelligence than are required to teach the pupils in any other grade.

The blackboard should be used extensively. Scholars should be taught to write well at first. I use script and not printing. Right here let me advise you to make a variety in your modes of teaching. If you have been teaching in one way that you think is the best, take another method to-morrow. The new way will be a revelation to some of your dull pupils with whom you have been unable to do anything. A primer is defective as a means of teaching reading because words are not repeated often enough in it. And here, too, the blackboard is indispensable, because the words may be used in all relations. You should all be first-rate writers, particularly those who teach in primary schools. This is the first step in the instruction which I give to my apprentices. The order of teaching should be words, phrases and sentences. Children at play give us the best reading. "The fault is not in our stars but in ourselves that we are underlings." We need, as I said before, some martyrs for this cause. Teachers induce

laziness by teaching the method that requires a child to repeat, parrot-like, sentences or words after them. Millions of children are learning words that don't suggest ideas. Our standard is too low, for it asks for words and not for ideas. When a child leaves school if it doesn't love books and can repeat page after page by heart the teaching has not been successful. If a child pronounces a word wrong, don't stop or let any one in the class interrupt him, but put the word on the board, and let it remain there for a subsequent lesson. Don't pay so much attention to the expression as to drive out of the child's mind the thought which is behind the word, and which is of paramount importance. I do not believe in the so-called explanations in arithmetic or in anything else. Every time you explain an example that the scholar can find out for himself you deprive him of so much mental energy which he might have obtained had he himself solved the problem.

A teacher knows when a child is ready for promotion. If he or she doesn't know the child's mind the teacher isn't fit to teach. No promotion should be based on a single final examination. Another bad notion that we have is that a boy's position depends on what he has been through. It isn't what a boy has been through, but the thing is what the boy can do. Thus it is that the boy who has lived on a farm goes to a city and quickly reaches the head of the class. Promotions should be for mental power and grasp; this should be the aim of your teaching. We are too much bound by courses and grades, and this bondage ought to be done away with. I think, too that you all ought to be born teachers. I can read your faces, and I see that you are sticking to an old treadmill. Throw over the treadmill, and go ahead.

The so-called Quincy system contains nothing new. It is as old as man, and I feel ashamed sometimes when I am credited with having made any discovery. It is the principle which all the grand teachers of the world have used—Aristotle, Plato, Bacon, and all of the others—men who taught the thought.

Spelling is a great bug-bear. I should favor phonic spelling, and, with Josh Billings, I can say that I should like to put some invention into spelling, and not be bound to fixed rules. But spelling has to be taught, and the question is how to teach children to make the form that is the written sign of the word. The best way to get the forms into the mind is to look at them closely. Thus close observation may be cultivated by drawing the words. No columns of words should be studied. Good spellers say, "I never forget a word when I see it."

There is no use of teaching words that are not to be used for years. A child should not be allowed to spell wrongly: Train him to know whether or not he knows a word. Make it necessary for him to learn by retrospection whether he has the picture of each word impressed on his mind. That you must keep the teaching within the range of the vocabulary, and teaching develops new words. Thus there will be a gradual and sure growth.

Now as to writing. Children should be taught from the first to write a hand that they will never have to change until what is called character appears in it. Now I have a hobby. A straight slanting line should be the first and is the most important letter in the alphabet. When this *I* is taught (and the slates, by the way, should always be ruled) many of the other letters will follow easily. This line is the fundamental stroke. Never allow a child to write poorly. The test of the writing is in the examination papers on other topics than writing. For if the composition papers for instance, are poorly written and the words in the copy-book are well done, the copy-book is a fraud.

As to language. I would teach all the forms of writing by two methods—writing the sentence on the board and then repeating it orally. That is not teaching which does not bring out thought. The lecturing system is the worst form of a bad method. Young teachers are very apt to commit this fault.

All teaching that evolves thought demands thought. Put sane, clear thought in the mind if you would have clear expression. Then comes mode—first thought, then expression, and then mode. Every lesson should be a language lesson. Both oral and written language should be demanded for every lesson. The teacher should be the model in the use of good English.

After the child has a nucleus of words, then we begin the word expression. Gather the little ones around you, as I told you this afternoon, and make them at home. You must lead them to talk freely to you, either by showing them pictures or by other means. Don't frighten them at first by corrections. When you get their confidence, you can begin to mold them. It is a great mistake to give set object lectures. Let the object itself ask the questions.

If I could have my way I would abolish the rules of arithmetic. Let the children find out these rules. History, too, can be divided into great topics. Work up the subjects from all sources. This makes the study of history delightful.

Five years ago the Committee placed the control of the Quincy Schools in my hands. I thought that the school should be made a joyful place. I was against text teaching. With twenty years work behind me, I went to work. The great obstacle was the ignorance of the subjects shown by the teachers. Text teaching does not require an absolutely exhaustive knowledge of the subject. I tried, then, to teach my teachers to learn the minds of those under them. I impressed upon them the necessity of doing well whatever they did. I set the teachers free to work out their own salvation. When I found a teacher who couldn't catch the spirit I asked her to resign. I made a change, too, in the management of the children. I like a hum in school, that is the hum of real work. I do not believe in stiff-backed rules of order. We introduced play into the kindergarten. Blocks and toys were drawn upon, and we tried to make the children happy. I hold punishment to be an

indication of the teacher's weakness—a strong doctrine, you may say, but if children are fed well and treated well, the question of order will take care of itself.

I believe, too, in the right of rebellion on the part of boys who are not fed with sufficient or with suitable work. I object to drudgery, but healthy, earnest, happy work I believe in.

It has been claimed that I stole this system—if it can be called such—from Cleveland. I stole everything I could. I want you to steal—steal books, particularly Horace Grant's delightful books. Go to work next Monday morning and do something that you have never done before. This work, if well done, may be harder than that which now engages you, but it carries with it its own reward. We want fifty teachers to stand by the right, even if they lose their places. By doing this we may hope to place the art of teaching where it belongs—among the arts of painting, music and sculpture.—Supt F. W. PARKER.

WRONGLY NAMED SUBSTANCES.

CHINA, as a name for porcelain, gives rise to the contradictory expressions, British china, Dutch Chelsea china, etc., like wooden millstones, iron millstones, brass shoe-horns, iron pens, steel pens.

GERMAN silver is not silver at all, nor was the metallic alloy called by that name invented by a German, but has been in use in China time out of mind.

MOSAIC gold has no connection with Moses or the metallic gold. It is an alloy of copper and zinc, used in the ancient musivum or tessellated work.

GALVANIZED iron is not galvanized. It is simply iron coated with zinc, and this is done by dipping it in a zinc bath containing muriatic acid.

JAPAN lacquer contains no lac at all, but is made from a kind of nut tree called *cardlæ*.

HONEY soap contains no honey, nor is honey any way employed in its manufacture. It is a mixture of palm-oil and soap, each one part, with three parts of crude soap or yellow soap, scented.

KID gloves are not made from kidskin, but of lamb or sheepskin. At present many of them are made of rotskin.

MEERSCHAUM is not petrified "sea foam," as its name implies, but is a composition of silica, magnesia and water.

MORAL CULTURE.

RICHTER says: If an ordinary man should lay before us his plan for the moral culture of his son, it would run in about this wise: First lesson, pure morality, taught his son, either by himself or the tutor; second lesson, mixed morality, which may be applied to one's own advantage; third lesson, do you not see how your father does it? fourth lesson, you are too little yet—this only suits grown-up people; fifth lesson, the chief thing is that you should succeed in the world and obtain some suitable position in the State; sixth lesson, not the temporal but the eternal determines the worth of a man; seventh lesson, therefore suffer injustice and be kind; eighth lesson, but defend yourself bravely, if any one attacks you; ninth lesson, don't be so wild and noisy; tenth lesson, a boy must not sit so still; eleventh lesson, you must be more obedient to your parents; twelfth lesson, and educate yourself. As for his wife, she resembles neither him nor the harlequin who came on the stage with a bundle of papers under each arm, and answered to the question, what he had under his right arm, "orders," and to the question, what he had under his left arm, he answered, "counter-orders." Nay, the mother might, perhaps, more suitably be compared to a giant Briareus, who had a hundred arms and a bundle of papers under each. The inconsistency in these lessons is apparent enough. V. S.

EDITORIAL.

Two years ago a commission was appointed by the Mayor and City Council of Baltimore to investigate the condition of the public school system and to make suggestions for its improvement. The members of the commission were Judge George Wm. Brown, R. M. Venable (lawyer), E. G. Hipsley (grocer), John T. Morris (lawyer), and Frederick Raine (proprietor of the *German Correspondent*). Judge Brown was chairman, and Mr. Venable secretary. Mr. Raine was in Europe during the greater part of the investigation. The report was lately sent to the Mayor. We have not seen it, but we take from the *Baltimore Sun* the following synopsis :

“The commission recommends an entire reconstruction of the Board of Public School Commissioners, viz.: That it should consist of nine members, who should be appointed by the Mayor from the city at large, and, like the present School Commissioners, serve without pay. Every member of the new Board should be appointed for six years, and there should be three new members appointed annually. This Board should have full legislative, executive and supervisory power over matters pertaining to the public schools. Further, it is recommended that there be appointed forty supervisors, two from each ward, by the School Commissioners, and that they, too, shall serve without pay. The supervisors should be required to inspect and exercise control over the sanitary regulations of schools placed under their charge; they should decide which children shall be admitted to the schools free, and which not; they should have the appointment of all subordinate servants about the schools, and also of temporary teachers, but they should have no power to interfere directly in the management of a school.

“The commission also considered the matter of the appointment of teachers, which is now done by the Board. Candidates are examined semi-annually by the Superintendent and his assistant, those who pass the examination receiving a certificate to that effect, which is good for three years. Those who receive these certificates, the graduates of the Normal School and those who receive the Peabody medals from the city high schools, are eligible to positions as teachers. The choice and nomination is left to the local committee on the particular school to which the teacher is to be appointed. New teachers are given a trial of nine days, after which they are either appointed permanently or dismissed. Against this system the commission have various objections: First, the number of those who are eligible is too large; all applicants should be subjected to a rigid examination. Second, the large number of those who are now eligible affords ground for the presumption that political or social influences may be brought to bear upon their election. Third, while it is almost impossible altogether to

keep out incompetent teachers, the number in the schools now is much larger than it should be. The commission recommends that in the choice of a teacher individual capacity should be given the highest consideration, while for political influence and favoritism there should be left the least possible room; moreover, that the competitive examinations should be so rigid that there would be no opportunity for a person not thoroughly qualified to pass. A newly-elected teacher should be given one year's trial, subject to close supervision.

"The term of the teacher is now limited to one year, because, it is urged, it is easier not to re-elect an inefficient teacher than it is to remove one directly. The commission disapproves of this system. It imbues even capable teachers with a feeling of insecurity, makes them feel that they are dependent upon the Commissioners, and gives to the latter the idea that the places of teachers are their own individual patronage. The commission, therefore, recommend that the term of the teacher be made to depend upon his or her good behavior. Teachers should have their clearly-defined rights and duties, which are essential to the maintenance of their self-respect and independence, while everything possible should be done to suppress the idea that the School Commissioner has absolute and arbitrary power.

"The powers of the teachers should be so regulated that they may be, to a certain extent, independent of the local committee—the highest authority to rest with the School Board. Such a course, the commission thinks, would remove the present machine-like uniformity of our school system. To the principals and teachers only should be given control over the continuance of a scholar in attendance; the method of instruction; the promotion or putting back of the scholar, and the ordering of household work. In all these matters the School Board shall, however, have the right of revision. The commission say that they were induced to recommend this reform mainly from considering the system of conducting the public schools of Germany.

"In the future there should be school examinations to show the competency and capacity of the teacher, as compliance for a long time with fixed regulations does not constitute full evidence of ability. In reference to the salaries of teachers, the report says the salaries of the Superintendent and teachers in the Baltimore schools are small in comparison with those paid in other cities, and a further reduction of them cannot possibly be of any good. The results of a system of education depend largely upon individual teachers. Capable and efficient teachers are above all things to be desired, and the commission have therefore paid special attention to this matter. In order to have good teachers, the position of teacher must

be made worthy, and this will be when there is some security in the term of appointment, a reasonable system of promotion, sufficient pay, and as much independence as is possible. They who make teaching a profession should be protected in their position just as army and navy officers are. The efficiency of the German schools is undoubtedly due largely to the stability of the teacher's position.

"As regards the expenses of the schools, the commission think the rules of the School Board regulating the giving out of contracts are sufficient. There may be a few abuses, but this is a matter for the committee on education of the Council to consider and attempt to regulate. The manner of making the estimates should be altered, so that it would be known at the beginning of the fiscal year exactly what amount of money would be required for current expenses and for improvements in buildings, etc. Lately there had been considerable discussion in reference to a reduction of the expenses of city departments. With reference to those of the public schools, the commission had neither the time nor the authority to examine accounts.

"In connection with text books and a curriculum, the commission lays down the following general rules: First, the object should be to teach only a little, but that little thoroughly; second, the curriculum and discipline should be adapted to the capacity of the children, and on this ground instruction in grammar should only be given in the higher classes; third, the object of teaching should be to develop the ability to think; fourth, the æsthetic sense in the children should be developed, and for this purpose attention should be paid to music and drawing, and particularly to the cultivation of the voice; fifth, physical exercise should also receive some attention; sixth, the moral education should not be neglected—the principles of ethics should be taught; seventh, every effort should be made to train the children in habits which will make them good citizens and successful in life. Especially should they be taught industry, perseverance, punctuality, frugality, and a desire for advancement.

"In concluding, the commission say they do not feel called upon to enter into a discussion as to the merits of public education, which is now recognized throughout the world as a duty that the State owes to itself in order to maintain and perfect its civilization. They believe that the public schools of Baltimore have done a great work, and their recommendations were made in the belief and hope that much may yet be done in order to push forward the work which has advanced so far.

"The commission did not feel called upon to express their views in detail as to how far public education should extend. The public appears to demand an education as comprehensive as the State can give, and even if it

was limited to the rudimentary branches of instruction, it would yet be essential to the perfection of the system to have a small number of high schools."

We defer criticism until the whole report shall be in our hands. There seems to be reason to fear that the commission, long as their time was, have not taken up the whole subject, but only certain parts of the subject. But at present we feel more disposed to be grateful for what has been said than to grumble at what has been left unsaid.

It is too early yet to hazard a prediction about the fate of the school system this winter. It has become a part of the ordinary routine of legislation to bring up the school law for reform and alteration at every meeting of the Legislature. Leave has been obtained for the introduction of no less than four bills on this subject already. Some of them will no doubt die young, and some will never see the light. In all probability, a measure will be passed changing the mode of appointing the School Commissioners, and the schools will run as before for two years longer. This will not be the cause of much regret;—as Legislatures go, no legislation is perhaps the best legislation.

As usual, the brunt of the attack falls on the State Normal School, the engineers in charge being of opinion that it is the weakest part of the fortress. They may be right, but so long as it serves to draw the fire of the enemy it is doing good service. At the very beginning of the session Mr. Murray Vandiver, of Harford county, (honor to whom honor is due,) moved to instruct the Committee of Education to report a bill to "abolish the State Normal School," and the House adopted his resolution. Some days later Mr. Murray Vandiver moved to appoint a committee to visit, inspect and report on the Normal School. Considering the tenor of the first resolution, this motion might seem to be unnecessary, or at least out of place; but the House passed the motion. Some days afterwards a committee of the Senate was appointed for the same purpose. The House sent a message to the Senate proposing that the two committees should act as a joint committee, to which the Senate agreed. Subsequently it was discovered that by this step Mr. Murray Vandiver had lost his place as general-in-chief, (the chairman of the Senate committee becoming chairman of the joint committee, according to custom;) so a message was sent to the Senate asking the Senate to recede from its acceptance of the proposal of the House to form a joint committee. This the Senate declined to do. Thereupon Mr. Murray Vandiver moved that the House committee be discharged, on the ground that it had no power to act. And the motion was carried. Immediately Mr. Murray Vandiver moved for the appointment of a new committee of nine, with power to send for persons and papers. And the House adopted the motion. "And so the thing remains."

Amid all this parliamentary warfare, it will seem strange that unparliamentary modes of fighting should be found necessary. But a fort which

cannot be taken by direct assault must be *undermined*. So a slanderous and false pamphlet, *without a name*, was placed on the desk of every Senator and Delegate, and was sent to all the newspapers in the State. Some surprise has been manifested that the Principal did not immediately reply to this anonymous pamphleteer. But it should be remembered that anonymous slanders do not deserve an answer; and even if one should seem to be proper, it is the State Board of Education that should determine on the propriety. For the Principal of the Normal School is the appointee, the agent and the instrument of that Board, and has no responsibility except for the way in which he executes the orders of the Board.

TEACHERS who attended the special session of the State Normal School last May will be glad to learn that a similar class will be formed this year, beginning on the last Tuesday of April and ending about the middle of June.

EDITORIAL CORRESPONDENCE.

A POINT FOR GRAMMARIANS.

Messrs. Editors: The reasoning by which many persons defend their preference for such forms of expression as "is being built," "is being paved," etc., is based, mainly, upon a very common misapprehension of the meaning of the syllable, *ing*, which forms in English the termination of the simple imperfect participle. Compare, for example, the words, *being, becoming, growing, doing, suffering*. The only idea conveyed in common by such words, is that of simple *continuity* in the being, agency, or condition expressed by the verb; but the error is too common among teachers, and even in works on grammar, of attributing to the termination, *ing*, the notion of activity. See Haldeman, "Affixes to English words;" Kerl, "Comprehensive Grammar," p. 183; G. Brown, "Grammar of English Grammars," observations appended to his "Fourth Example of conjugation;" J. W. Gibbs, "Philological Studies," Art. XXIX.

There seems to be nothing, therefore, in the form or meaning of the participle in *ing*, to forbid its employment in a passive sense, any more than there is in that which commonly ends in *ed* or *en*, namely, the perfect participle. Accordingly, we find on examination that this has long been the usage of our best critics and writers. We quote some examples:

"It requires no motion in the organs whilst it *is forming*." *Murray's Gram.*, 800, p. 34. "Plutarch's Lives *are reprinting*." *Ib.*, p. 144. "A Scheme which *has been carrying on*, and *is still carrying on*." *Butler's Analogy*, p. 188. "While these things *were transacting* in Germany." *Russell's Modern Europe*, L., 59. "While the experiment *was making*, he was watching every movement." *Ib.*, p. 309. "The padlocks for our lips *are forging*." *Whittier: Liberator*, No. 993. "Which have been made, and *are making*." *Henry Clay. Ib.* ix., p. 141.

"Which is now accomplishing amongst the uncivilized countries of the earth." *Chalmer's Sermons*, p. 281. "Who are ruining or ruined, in this way." *Locke on Education*, p. 155.

Expressions of this kind are often condemned upon the mere assumption that the participle in *ing*, can never be passive; but the usage has unquestionably better authority, and in the opinion of our best critics, is in far better taste than the doubly compound and clumsy phraseology which some writers adopt in its stead; as, "The work *is being published*," "The goods *are being sold*." This form has come into use within fifty years, and finds its principle support in the influence of the newspaper press, that constant source of uncouth usage and grammatical corruption. The most that can be said in favor of the unwieldy phraseology, is, that with a few verbs it seems to be admissible, and, therefore, convenient; but we deprecate the mistaken zeal, that is ready to strip a principal element in our transitive verbs of half its significance, to make room for the deformity; and then to teach that the English language possesses no other, and no simpler mode of expression.

A full discussion of this subject would require more time and space than can now be given to it; but enough has been said, to indicate which form our best writers prefer, and to assist the careful inquirer to a proper understanding of the points involved. G. J.

HAVRE DE GRACE, January 17, 1880.

See Loundsbury's "English Language," p. 134, for a justification of both forms, *is building*, and *is being built*.—ED.

DICTATION IN A SWISS SCHOOL.

Messrs. Editors: Yesterday I visited a friend of mine at the *College Municipal* of this city. He was just conducting a dictation exercise, in a class of fifteen pupils, whose ages average about fourteen years, and whose rank is probably that of our pupils in the second year of our high schools.

The first thing in order was the correction of the last dictation, which was a selection from a French play. Aside from the general idea of dictation, the professor has made it a practical grammar lesson, the special point of which was the agreement of relative pronouns and peculiar constructions of substantives.

After some remarks about the neatness of some books and the want of sufficient care shown in others, the professor proceeded to an orderly distribution of the books, and in such a manner that no pupil had his own book. He kept one book, from which he read the dictation, spelling the words which concerned the grammar lesson and such others as might be mis-spelled. In French, the ear cannot distinguish errors in agreement as easily as in English. Thus, *he who listens*, and *they who listen* are expressions which show from the pronunciation of the verb whether the pronoun *who* is singular or plural, according to the demand of the antecedent.

In French, we say *celui qui écoute*, and *ceux qui écoutent*; the verbs are pronounced alike, although the plural adds *nt*. This explains the value of dictation in such grammar lessons.

The grammar was dwelt upon by asking for the reasons for writing as corrected. Other errors were discussed when called for, but grammar had the precedence over everything else.

At the close, the books were exchanged and percentages recorded. The new subject was then announced, while all were getting ready for writing. The subject was a historical sketch of Babylon, a subject given to the applicants for teachers' certificates, some time ago.

The hour was profitably spent, most of the pupils showing a practical knowledge of the grammatical difficulties under consideration. A. R.

NEUCHATEL, November 11, 1879.

To MAKE two blades of grass to grow where only one had grown before is to perform a service for humanity which will last while the earth itself endures. As a contribution to such a noble purpose, a philanthropic citizen of Baltimore, Mr. J. W. Bond, makes the following offer to the boys of his native county of Harford:

"To the boy who shall raise the most Indian corn on one-eighth of an acre of land in the year 1880 ONE HUNDRED DOLLARS in gold. To the boy who shall raise the next largest quantity, FIFTY DOLLARS in gold, and to the boy who shall raise the next largest quantity, TWENTY DOLLARS in gold, and to the next FIFTEEN, and to the next TEN. The awards will be made subject to the following conditions:

"1st. Every contestant must have resided in Harford county at least two years, and be under eighteen years of age on June 1st, 1880.

"2d. All entries must be made and communicated to the President of the Harford County Agricultural Society on or before May 1, 1880.

"3d. The land shall be measured by some person appointed for that purpose by the President of said Society during the summer of 1880. The corn may grow to the edge of the line, but in no case beyond it.

"4th. The land may be of any shape, but not less than two rods wide.

"5th. The contestant must do all the work in raising the corn, except that he may have some one to drive the oxen or horses in plowing or cultivating.

"6th. The contestant may use as much and any kind of manure as he pleases, and may hoe the corn as many times as and when he chooses.

"7th. The corn is to be measured under the direction of the President of said Society.

"8th. At the end of the season each contestant shall make and sign a full report, giving shape, description and location of land; when plowed; when and how manured; when planted; when and how many times hoed; when stalks were topped, if at all; when harvested and how much is raised, and as nearly as can be estimated the value of manure and number of days' labor spent upon the crop, excluding the husking, when he may have all the help he wants from the boys and girls in the neighborhood.

"9th. All awards to be made by the President of said Society at the end of the season, and his decision shall be final.

"Each contestant will send by mail his name, age and postoffice address, and his father's name, to J. W. Bond, 90 and 92 Baltimore street, Baltimore, and to Garrett Amos, President of Agricultural Society, Fallston, Harford county."

BOOK NOTICES.

THE last number of the *American Antiquarian* (Jameson & Morse, Chicago,) is exceedingly interesting. The Mound Builders; Alaska and its Inhabitants; Antiquity of the Tobacco Pipe in Europe; Fort Wayne, and the Route from the Maumee to the Wabash; The Delaware Indians in Ohio, and Sacrificial Mounds in Illinois and Ohio, are the principal articles. The Oriental and editorial departments are ably managed.

THE *Musical Herald* (Musical Herald Company, Boston,) is a new and note-worthy addition to the musical journals. The *Herald* contains, amongst other things, illustrated sketches of the lives of eminent composers, instructive articles on methods of vocal and instrumental culture, reports of the doings in the musical world, and new music.

THE *Popular Science Monthly* for March is rich in the variety of its contributions, but is especially strong in the direction of education. In this field it is doing a most important work, its educational papers being very ably written. In this number we may mention "Intemperance in Study," by D. Hack Tuke; "The Early Free Schools in America," by Alice H. Rhine; "Athletics in Schools;" and a strong editorial on higher education in the New York schools.

PUBLISHER'S DEPARTMENT.

By some unaccountable error, quite a number of copies of the February JOURNAL miscarried. If our subscribers will kindly notify us by postal card, we will gladly replace such copies.

WE invite correspondence from all our readers. Suggestions, queries and articles for publication will receive prompt attention.

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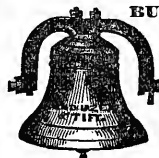
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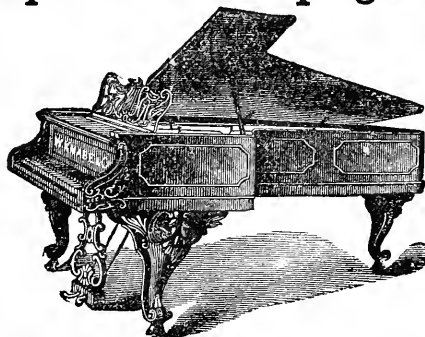
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THE
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HAMILTONIAN SYSTEM OF COMMON SCHOOLS.*

WE have read Gail Hamilton's new book with surprise, not unmingled with regret:—surprise that a writer of so much originality should have given the stamp of her name to a series of utterances that have long been recognized as commonplaces by readers of educational literature; and regret that her great power as a controversialist should have been wasted in the unprofitable work of collecting and re-sharpening the blunted arrows of former conflicts. There is nothing in "Our Common School System" that has not been already said, again and again, either by its friends or its enemies; and it would not be easy to say to which class the author belongs, her mode of warfare being apparently guided by the rule of the Irish faction-fighter, "Wherever you see a head hit it."

We must protest, at the outset, against the assumption implied in the title—"Our Common School System." The system singled out for attack is not *ours*, in the sense of being recognized as the system of the United States, or of any considerable number of the States. That abuses have sprung up in some places, and that Gail Hamilton may have correctly described some of these local monstrosities which have happened to come

* "Our Common School System," by Gail Hamilton; Boston, *Estes & Lauriat*.

under her own observation, we have no wish to deny. But we cannot for a moment admit that the School System of Massachusetts, as described by Gail Hamilton in the following sentence, is *our* school system. "The school system of Massachusetts, with all its supervision and all its superintendence, and all its expensiveness, is so ineffective, it so magnifies and nourishes itself, and so neglects, not to say dwarfs, the pupils, that a child may go through the whole course, from primary to high school inclusive, without a single absence or tardiness, and receive his diploma of graduation, and come out thoroughly illiterate, absolutely untrained—with no accomplishment except slang, with no taste above dime novels, with neither brain nor nerve nor muscle, braced for the battle of life." This may be true of Massachusetts, but it is not a correct description of *our* schools.

Gail Hamilton's theory of the Common School System may be conveniently described in a single line: "Whatever *was*, was right; whatever *is*, is wrong." The ungraded school, the old frame house, where, with her companions, she used "to make cuddy-houses of their seats in winter," and where she used "to slide down the slanting aisles, made slippery with two dipperfuls of water in summer," she remembers with affection and delight; "the Old Academy," too, that "nursery of learning," not consecrated, like Normal Schools, "to the legitimization, the deification and the perpetuation of ignorance;" and the "random teachers" of her youth, she looks back upon with veneration and affection. For these are of the things that were, and she is emphatically "*laudator temporis acti*." But for the present fashions, and all that makes American schools what they are, they are to her an abomination. Away with them! Away with high schools, and normal schools, and industrial schools (if we have any such things), and teachers' institutes and educational magazines—away with superintendents and supervisors, and "machinery" of every kind; away with examinations and reviews; away with object-teaching and oral lessons; away with drawing and singing, with geometry and algebra, with

everything in fact, except the three R's—and "our common school system" will be, if not absolutely perfect, yet on the high road to perfection—on the Hamiltonian theory. Our readers will hardly believe, without some further proof, that we are not indulging in rhetorical exaggeration. Let the book speak for itself.

The high school (page 24) educates a young person "above his condition. It fits him for pleasant, intellectual work; but it does not provide that work." (Does the common school provide any work?) "It gives him the education of the rich; but it gives him none of the immunities of the rich. He has all the tastes and aspirations of wealth, but all the necessities and limitations of poverty. Is there not a touch of cruelty in this?" In other words, "where ignorance is bliss 'tis folly to be wise;"—that is, to say, if the wisdom is obtained at a high school, gratis; but if it is purchased at a private Academy, the case is quite different, as we shall see hereafter. "What right has government to bestow luxury of education any more than luxury of dress?" None; but more simply, and, with equal force of logic, what right has government to bestow any education and any dress, except upon absolute paupers. If the argument is good for anything it proves too much; it proves that government has no right to meddle with dress and education, criminals and paupers alone excepted. "No high school diploma is demanded at the polls. It is thereby conceded that a high school education is not necessary to the safety of the republic. Why, then, should law enforce a supply of gratuitous education, any more than it enforces gratuitous carpets and carriages?" Let us carry out the argument to its legitimate end. "No common school diploma is demanded at the polls. No knowledge of reading and writing is required from a voter. It is thereby conceded that a common school education is not necessary to the safety of the republic. Why then should law enforce a supply of gratuitous reading and writing any more than it enforces gratuitous carpets and carriages?"

This is only another illustration of the truth that has often been proclaimed—that there is no argument against high schools which does not tell with equal, or even greater effect against common schools. Consequently deep thinkers, like Herbert Spencer, who are opposed to the one are equally opposed to the other. It is the high school that is most easily defended—in fact it was the public high school, under the name of academy, that brought the common school into existence and supplied the latter with a *raison d'être*.

“Yet it is unfair to raise the cry of aristocracy against the present system, with all its complications, high schools included. In some respects it is the most democratic of republican institutions. It is not only true that all the schools are open to all the people, but it is also true, that *the rich are taxed far beyond their proportion of direct benefit.*” The words which we have italicised deserve more than a passing notice. So far as we have read political economy, and so much as we have seen of the practical working of governments, we have never read nor observed that any taxes are proportioned to the direct benefit enjoyed by those who pay them. The alms-house is not supported by paupers, nor the penitentiary by criminals, nor the police by tramps and drunkards. Even the blind man pays his proportion of the cost of city gas; and never grumbles that he is “taxed far beyond his proportion of direct benefit.” It is only when education is concerned that we hear of comparisons being made between the amount of taxes paid and the amount of “direct benefit” conferred. But if it were true that taxes should be levied in proportion to direct benefit, the only remedy lies in the abolition of public schools, and the substitution of private schools, where every man should get exactly what he pays for—neither more nor less. To abolish merely the common schools, would be to make the disproportion still greater. It would be to say to the rich, you must be taxed, but you shall not have the direct benefit of the tax. You must pay for the education of other men’s children, and you must send your own to private seminaries at your individual expense.

It is not worth while to pursue this line of argument; for it derives its only strength from the assumption that taxes should be in proportion to benefit—an assumption which we repudiate.

“It is true that the high school is in theory open to all; but actually, it is only the very few who can and do take advantage of it. Of every hundred pupils who attend the lower schools, statistics show that not more than five, in many places not more than three, attend the high school.” If this five per cent. consists of the sons of rich men, they are entitled to this higher education, on the Hamiltonian theory, for their fathers have been taxed for it “far beyond their proportion of direct benefit.” But if they are the sons of poor men, still more does the interest of the commonwealth require them to be well educated. They are needed to keep up the proper balance of power between money and intelligence. Money is making, at this day, a desperate effort to control the government—national, state and municipal. The only antagonist that can hope to compete with it is educated intelligence. Put the money-bags and the brains all on one side and the ship will capsize. Give the poor man’s son merely the elements of reading and writing, and let the rich have exclusive possession of culture and training, and money will become the crowned despot of the nation. If there is but a small percentage of those who are not rich that can afford to go to the high school it is all the more important to the country that these few should be educated, even at the expense of the rich. For, as our author says, “it is not possible to set too high a value on education. The more thorough it is in the few the more beneficial it is to the many. The deepest, the broadest, the most liberalizing culture is to be desired. The scholarship of the scholar is the boon and blessing of the unlearned. The many are uplifted by the trained and far-reaching intelligence of the few.” No better vindication of public education is needed. It is, indeed, the agent by which the many are up-lifted by the trained and far-reaching intelligence of the few. Possibly, five or ten per cent. of the names on the great muster-roll

of the public school army can be found in this *corps d'élite*: but a little leaven leaveneth the whole lump. The five and the ninety-five are companions in arms; they breathe the same spirit; they march to the same music, beneath the same flag, against the same enemy, to fight the same battle and win the same victory.

It is with hesitation that we quote the sentence that follows almost immediately the last beautiful extract—"But I venture to say no man ever conferred distinction upon this country who owed his power the high school." We believe the author will live to regret having written it. It may be true within a certain very narrow range of vision, or may appear true under some strong optical delusion, but it cannot be reconciled with the history of current events, taking the whole country for our field of observation. Let it be remarked that the objection lies not against education, but against high school education, and against it as contrasted with academic education. But most wonderful of all is the reason given for the discrimination—it is that the one is free, the other paid for. "This matter is not wholly one of theory. We have the two systems—education *bestowed* and education *purchased*—under full headway, in conditions not precisely the same, but sufficiently similar to throw light on the discussion." Then follows a description of a village where there is no high school, and which, by reason of this lack, has become another Auburn, "loveliest village of the plain." "The prayer-meetings of the church," in this village, are "better conducted than any city prayer-meeting that I ever attended. There is less droning, less vulgarity, less bad grammar, and less self-conceit, with more simplicity and directness. Poverty is almost unknown, and almost disreputable. Everybody is industrious, well-to-do, and decently dressed." And all this, we are to believe, is caused by the lack of a high school. Had the young men and maidens of "Sweet Auburn" been so unfortunate as to have been sent to a high school in their youth, there would have been more droning, more vulgarity, more

bad grammar, more self-conceit, with less simplicity and directness, in that loveliest of villages—on the Hamiltonian theory. Now look at the other disastrous consequences that are produced by high schools:—"Three hundred idle, well-dressed, well-educated young men [though "after all, ridiculously below the pupils of private institutions"] applying for one insignificant clerkship; fifty clergymen crowding one ecclesiastical broker's shop on Saturday afternoon; a hundred young ladies answering an advertisement for one copyist; throngs of intelligent, refined, healthy persons, in the youth and prime of their years, blocking the doorway of every supposed easy-going routine office in the country!"

If one were to suggest as a remedy for this alarming state of affairs, that the schools ought to do something more for their pupils than merely fit them for places as clerks or copyists; that the elements of handicraft might be added to the elements of grammar and arithmetic, the suggestion would not be favorably received by our author. She would "view with the suspicion the establishment of industrial schools by the government." "One reason against industrial schools is their inadequacy. You cannot teach all the industries. The State ought to furnish tuition in all, or tuition in none." Yet that something should be done, and that speedily, is clearly shown by the author herself. "Already our bridges are crashing beneath our feet, and our houses are tumbling over our heads, because they are so badly built. Men will not serve apprenticeship to the trades, but with little learning and less experience rush in as master-builders; and property and limb and life suffer in consequence." No better text for a sermon on the need of industrial education could be selected. "I see no reason why the public should pay for the apprenticeship of teachers, and the partial apprenticeship of doctors any more than that of blacksmith." That is indeed all that a discreet advocate of industrial schools would claim—that the public should give as much educational aid to the boy who wants to be a blacksmith, as to the boy who wants to be a teacher or a doctor of medicine.

It would be amusing, if the subject were not too serious for legitimate amusement, to notice the contradictions into which our author falls, according to the point of view from which at the moment she happens to be regarding an object. In the very chapter in which we are told that "our houses are tumbling over our heads because they are so badly built," we are also told that "the native-born American mechanic is—when he gives his mind to it—the best mechanic under the sun." The reconciling clause is, we suppose, the parenthesis, "when he gives his mind to it," and for leaving out this qualifying phrase "the South Kensington professor" (Mr. Walter Smith) comes in for a large share of—rhetoric. "The very moment when this American nation is not only sending oatmeal to Scotland, and beef-steak to England and cotton to all the world; but silks to France and watches to Switzerland, and the finest parts of music-boxes to Italy, and steam enginery to Russia, and cutlery to Manchester and carriages to London—this very moment is seized upon by our South Kensington professor to announce in the capital of the United States that the name of the natural-born American mechanic is a synonym for want of skill." The South Kensington professor should have added, "because he does not 'give his mind to it.'" But whether he gives his mind to it or not, it is none the less true, as our author has said, that "our bridges are crashing beneath our feet, and our houses tumbling over our heads, because they are so badly built."

This principle of contradiction is well illustrated in the treatment of the subject of high schools. We are told on page 24, that the high school gives to the poor "the education of the rich;" and on page 67 that they give "so far as they go, a good classical education;" we are told (page 31) that pupils go to the high school "because it is a pleasant and profitable way of passing the years of their youth;" we read on page 31, that no "better preparation for teaching in the high schools exists than taking the high school course of study under cultivated and accomplished teachers;" and, on

page 37, that "the best teachers, the most highly educated and the most highly paid are put into the high schools." We are also assured (page 12) that "the merchant's boy at the most expensive private school in the land is no better fitted for college than is the washerwoman's at the high school, without money and without price." These be brave words; yet we also read (page 31) that the high school does not "bestow upon the few whom it selects for special training anything to be compared to the education bestowed by private academies and colleges; (page 32) that "it leaves its few beneficiaries below, ridiculously below the pupils of private institutions;" and page 38, "no man ever conferred distinction upon this country who owed his power to the high schools."

As we have seen, the author has an occasional good word for the high schools. "They do give pupils, so far as they go, a good classical education." Even for the industrial schools (in prospect) she has a word of encouragement. "Industrial schools, if established, will give their pupil industrial skill." But, in behalf of normal schools there is not a word to be said; they are evil, and that continually. They "do not accomplish, and in the nature of things cannot accomplish, but must retard the end for which they are established. They not only do not secure us good teaching, but they stand in the way of good teaching." . . . "Teaching is the one thing that cannot be taught." . . . "The training of training schools and normal schools is the training of all into subjugation to one, the training of teachers and pupils into uniformity of drill and dwarfage. Nothing can be more harmful for the mental development of a city than to have a training school established in the city, and to take the teachers from that training school. Monotony and mediocrity will be stamped all over it." The very name of normal school seems to produce on Gail Hamilton's nerves an irritation that can only be soothed by an explosion. "A retrograde, inferior, superficial seat of learning!" "Consecrated to the legitimization, the deification and the perpetuation of ignorance!"

We are not specially concerned to defend normal schools. Were any reasons assigned for the dogmatic utterances just quoted, we should with "reason answer them," out of respect for the writer, if for nothing else. But when we are told, *ex cathedra*, that the art of teaching cannot be taught, we no more think of arguing against the pronunciamento, than we should think of discussing with Brother Jasper his famous thesis, "The Sun do move." We are content with knowing that the art of teaching can be taught and has been taught; and that men whose experience gives them a right to form an opinion—in New England, in the Middle States, in the West and in the South; in England, France, Germany, Switzerland—however they may differ in other respects, agree in this, that the art of teaching ought to be taught to all who aspire to be teachers of primary schools.

But if no argument against normal schools—for denunciation is not argument—can be found in the book under review, a very strong argument in favor of normal schools can be constructed out of the materials which it supplies. "If our primary and grammar and high schools are what they ought to be they are all normal schools." Granted; but our primary and grammar and high schools are *not* what they ought to be, our author herself being witness, and thus a *prima facie* case in favor of normal schools, or some similar agency, is established. It is true that, partly to avoid local prejudice, and partly from a mistaken view of the real strength of normal teaching, it has been set forth, that the normal school is strictly *professional*, and that it ought not to teach any of the subjects belonging to the curriculum of primary, grammar, and high schools, but merely the mode of teaching those subjects, and, in addition, the method of organizing and managing schools, with the philosophical principles on which such methods of instruction, organization and management depend. In an ideal system of public schools such would be the legitimate function of the normal school. But an examination of schools as they actually exist, show that in a majority of instances they are very, very

far behind the ideal standard. And consequently one of the principal functions of the normal school of to-day is to hold up for observation and imitation, forms of teaching and management, which shall approximate the ideal as closely as possible. The practical side is at present of far more importance than the theoretical. In the course of time we hope the relations will be reversed.

"The mind, the very being of the graduate is shaped and moulded and polished by the conscious and unconscious influence of the teachers, by whom he has been instructed from year to year." And therefore, have we normal schools. But, replies our author, every school ought to be a normal school in this sense. So it ought, but so it is not. Every man ought to be healthy; but every man is not healthy; therefore have we doctors. Every man ought to be a Christian; but every man is not a Christian; therefore have we preachers. Even in an ideal state of society there would still be occasion for the normal school, though not to the same extent as now. For much of that "influence" to which so much importance is very properly attributed is exerted on the minds of those who are too young to be conscious of it; it is not enough for the teacher that he should have been subject to good influences in his childhood; these influences must be reproduced in consciousness, and made objects of thoughts before they can be used as guides in the instruction of others. For a layman it may be enough to feel that he was duly shaped and moulded and polished in his early youth; but a teacher must also know *how* these necessary operations were performed. And therefore have we normal schools. "It is the exemplification of good teaching in his teacher which fits the pupil, so far as he can be fitted, for teaching." And therefore, again, we must have normal schools.

For it is, in the very nature of things, impossible that each one of the 100,000 teachers in the United States should come up to the high standard which would render normal schools unnecessary. It would be absurd to expect even a tenth part of them

to attain, within this generation, such a condition as would justify us in dispensing with professional instruction and supervision. It is very true that "the very best minds, the very highest cultivation, the most refined taste, the most polite manners should be set up in the common schools for example and instruction, so that the pupil should have before him not simply his books and his time, but a model of behavior, a fountain of wisdom, a pattern;" but is it not also true, unfortunately, that such teachers are not to be had by the hundred thousand at an average salary of forty dollars a month? Is it not equally true that a hundred dollars a month would not command the services of such men, if they existed? Supposing then that the people of the United States were willing to double their school taxes, the right men and women could not be found to do the work at the salaries. But still further, if the salaries were unlimited, the required numbers could not be obtained. For genius is not to be had at wholesale. The mere fact that we are seeking "the very best minds, and the very highest cultivation" warns us that we can have only a limited supply of the article. What should we think of a jeweller who should advertise for a hundred thousand of the very largest and purest diamonds? The supply of teachers having "the very best minds and the very highest cultivation" being thus necessarily limited, it becomes an important question (though very easily answered) "What shall we do with them—where shall we put them?" "Put them in the common schools," says Gail Hamilton. Put them in the normal schools, says common sense. In the one they will be as gold placed at simple interest; in the other at compound interest. In the one the corn is ground into meal for immediate use; in the other it is planted in good soil, and brings forth fifty or a hundred fold. No words can adequately describe the wonderful influence of a strong, good and wise teacher upon his pupils. But if these pupils become *teachers* in their turn, the influence of the original teacher is increased in proportion to the number of the disciples who preach his doctrine and walk in his footsteps.

We would not be understood as claiming that all normal schools are under the control of strong, good and wise teachers. A school is nothing the better of being called normal; and some have nothing normal about them but the name. But a teacher is not the less a good teacher for teaching in a normal school. When the principal of one of our fine old academies, those venerable "nurseries of learning," is transferred to a normal school, the odor of sanctity does not evaporate on the threshold of his new abode. Thomas Arnold would have been none the less, but all the more, a power in England had he been removed in the maturity of his powers from Rugby to the Training College at Chester. Teachers like him are as rare as genius in any other department of human society; we must not always expect to find genius at the head of a normal school; but when we do find a teacher of genius, "with the very best mind, the very highest cultivation, the most refined taste, the most polite manners," the place where he can do most good is in the normal school. To increase the intensity and penetrating power of a light, we place it in the focus of a system of Fresnel lenses. The lantern does not create the light; it economizes and directs it.

It is hard to say whether our author's pet aversion is the high school, the normal school, or the superintendent. To the two former she is evidently opposed on principle; but when she speaks of the supervisor or superintendent, we almost fancy she has some one in her eye, and is paying off old scores—with interest. "There is no reason why a superintendent should be set over any number of teachers and impose upon them any method he thinks best." "It is enough to drive teachers wild to be subjected to such insensate impertinence; and to reflect that while they are paid five or six or seven hundred dollars a year for real work, these wisecrackers get three or four thousand for their incomprehensible fatuity." "The arrogance and ignorance of school officers in those parts of our country most over-ridden by the "System" are

so great that no lady or gentleman would enlist as a teacher under them unless compelled by necessity." "A school superintendent may be very useful as an errand-boy; that is, to do the outside work which is necessary, but mechanical and foreign to the real work of teaching." "Teachers left to their own responsibility and ingenuity would give us a thousand-fold better schools than such as now strut along in good marching order, but with no other valuable trait, under the superintendent's wand." "The superintendent is a mere modern invention for receiving a salary, whose beneficence seldom rises above harmlessness, whose activity is usually mischievous." "What are the school superintendents doing? They are grinding their organs in the public halls. They are taking to themselves the credit of whatever value is in the schools, every particle of which credit usually belongs to the teachers who do all the work that is any thing worth. They are hindering and bothering, discouraging and demoralizing the teachers by giving them so many useless things to do that they have little time to do useful things. . . . The supervision is thus eating out all the life of the schools by making them a round and routine of uniformity and mechanical drill." "They [the superintendents] are mighty in the spelling-book, but I never heard of a superintendent mousing around a high school with selected problems in the higher mathematics, or intricate Greek renderings."

A careful sifting would, perhaps, discover some shining grains of golden truth among tons of such rubbish, but we will leave the sifting to the reader.

It is easily seen what the Hamiltonian system implies. Without high schools, or normal schools, or superintendents, without reports, or examinations, or reviews, or *system* of any kind, what is to become of public schools, our author does not leave us in doubt. She is opposed to public schools, and therefore she is opposed to that which makes public schools efficient, and in fact, possible. Page 354. "*Education left to individual ambition, individual emulation, individual selfish-*

ness would be just as deeply and widely and wisely pursued as now, when spasmodically and partially provided for by the government and smothered by system." Thus we see that in Massachusetts as in Maryland, opposition to certain conspicuous features of the public school system, excrescences, as some legislators and editors call them, is only a symptom of deep-seated hostility against public schools of any kind. If the excrescences were removed and if anything were left after the operation (which is doubtful) the poor remainder would be at once placed under fire and made to surrender at discretion. A knowledge of this fact, which is becoming plainer every day, should stimulate the friends of public education to an obstinate and courageous defence of the whole system, excrescences and all. That it can be improved and strengthened is patent to all; but we do not propose to pull down any portion of our bulwarks while we are under fire. Improvements must be made by the friends of public education, and not at the dictation of enemies. And let us not be deceived, by the eulogiums pronounced on education by certain writers, into the belief that the eulogists are friends of *public* education. The education which they praise is the education they have themselves received; the education which they have paid for, and which others may pay for if they can; the education which makes them, or would make them if they had their own way, into a distinct, exclusive and privileged class in society. The education they are opposed to is the education of the poor who cannot get it unless it is *given* to them, the education which would raise the poor above that condition of life in which providence has placed them and to which their enemies would confine them. The education that would give to the son of the poor mechanic the same intellectual culture and æsthetic taste as to the son of a rich banker, the education that would go far to make democratic equality a practical fact in place of a philosophical dream, by making all the votes weigh equally as they now *count* equally.

Public education has three bitter enemies; two of them working more or less secretly: ecclesiasticism, aristocracy, and avarice. The open enemy can be met and conquered; the secret foes can also be conquered, but they must first be unmasked.

ADVICE TO SCHOOL-MA'AMS.

IN an address to school-mistresses at Cincinnati the Rev. Mr. Mayo said, "If you would awaken the love of beauty in your children, you must in some way be beautiful yourself. And every true woman knows she has it in her to be supremely lovely to somebody. Children go deeper than the outer face or form, and feel by a subtle magnetism the childlike love, trust, and confidence in the soul of their teacher. Thus your schoolkeeping may become the loftiest university to you, for there you are compelled to take yourself in hand and put yourself in communion with the heart and mind of childhood as the prime condition of success. It is true there are people who by nature are endowed with the gift of being beautiful to children. 'Oh, what a lovely schoolma'am we've got!' shouted a little girl to me at noon of the first day of the new term. Pretty soon along came the new angel, seemingly a very plain young woman in curls, till a merry glance launched from her eye, like a shaft of sunshine from a loophole in a bastion of grey clouds, transfixed her little admirer, perched on the garden wall, and made one grave man sigh for old days of school life again. The plain young schoolma'am in curls had a heart full of precious things for little Nell and all the other little folks over in the red schoolhouse, and they knew it by instinct. How often the children will leave the parlor, with its grand furnishings and polite company, for the kitchen, to hang about the cook, the man of all work, or some old codger of a Sam Lawson who draws the little children of a village after him like the train of a comet. They recognize the childlike spirit under Bridget's rough, red arms and Sam's

dilapidated hat, and follow it as the most beautiful thing they know. You may not be gifted with this attractive power, which lays hold on children in this irresistible way, but something of it is given to the dullest soul that is born into the flesh, and it is one of the deepest mysteries of our spiritual life that we all, by toil and consecration, and watching the ways of providence, so get into accord with nature and the Holy Spirit that we may become reconstructed into the image of whatsoever high and holy thing we most admire. And in proportion as you are what every young woman who deals with children should be, you cannot help becoming lovely to them. God's way of educating us into refinement of soul and life is to compel us to look upon and live with one who is to be a daily revelation of grace and nobility. So in these deep places of the spirit, and in the daily life in the schoolroom, you are awaking a faculty for the appreciation of beauty, without which all outward training and beautiful surroundings leave the child like a wild beast in a flower garden, or the man and woman like a pair of savages in the palace builded by his money and degraded by her vulgarity. Once awakened, this love for beauty will permeate every trait of character and adorn every act of life, as the soft dampness of the old English air dresses up the roughest hedge into a fluttering bank of blossoms, carpets the stone walls all over the Westmoreland hills with the tenderest ferns, and veils the ugliness of the crookedest old stick dropped by the wayside with a garment of the most delicate green. This is 'an art culture' that is practicable for every child; the art of loving beauty and beautiful people and objects in nature and life. If this feeling of beauty can be once aroused in the souls of this generation of school boys and girls: aroused, by the love and loveliness of the young people set to teach and train them in the common school, we shall have the possibility of all desired growth not only in the artistic work of the hand, but in the higher realm of refined manners and a society always nearing the golden rule."—*The Educational Weekly*.

FIRST LESSONS IN BOTANY.

BY G. L. SMITH.

XVII. BLOOD ROOT.

Teacher.—While you are out in the woods looking for Hepaticas you will very likely run across some larger white flowers, and if there is a bed of them you may take it for the remains of a snow bank. They grow on hill-sides and near streams, where it is not too damp, but are so fond of sunlight that they

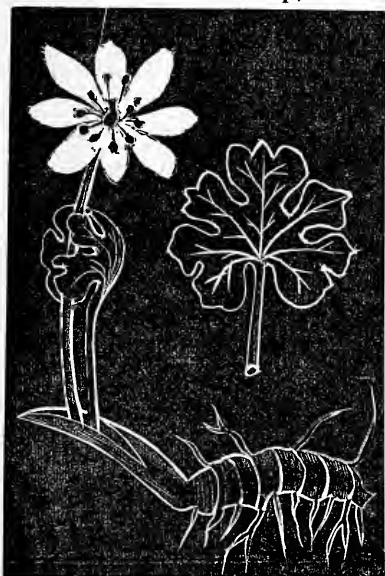


Figure 10.

only open on bright days. When you come across some take one up by the root, and then see if you can find one in bud. Here are a number of plants with the rhizome and its fibres or roots, also the flower in full bloom, and the irregular shaped leaf (figure 10.) Describe the rhizome.

Pupil.—It is red, and very crooked and knotty.

T.—Break it in two and look at the broken edges.

P.—A red juice runs out.

T.—The plant is called *Blood-root*, because its root contains this reddish juice.

What part of the rhizome do the leaves start from?

P.—The flower and leaf both come from a queer-looking scaly part, at the end of the rhizome.

T.—In the bud the flower is wrapped up in the leaf, and both are surrounded by these membranous scales. Notice in this one and in some of yours how the leaf still clings to the scape. What is the shape of the leaf?

P.—It is almost round in the outline, but the margin is cut up by deep rounded cuts, and the petiole extends nearly to the centre.

T.—It is palmately veined, and the deep cuts separate the blade into lobes. Let us call it a *rounded, palmate, lobed leaf*. How many lobes are there?

P.—There are seven lobes, if we count only the deeper cuts.

T.—How high does the scape grow?

P.—About six inches high.

T.—Describe the scape.

P.—It is cylindrical, of a yellow orange color and glabrous.

T.—What kind of a flower has it?

P.—It has one white flower, but there is only one row outside the stamens and pistil, and I suppose this is called the calyx and it has no corolla.

T.—You have not noticed the buds or you would not think the flower is *apetalous*. Here are some (Fig. 11), examine them.

P.—This bud has a calyx of two pinkish white sepals, but why have not the others?

T.—I once wondered why the flowers in full bloom never had calyxes, while the buds always had them, and determined to find out; so I went into the woods and watched for nearly half a day until I saw one of the buds untold, and when the petals were partly spread the sepals dropped off. Then I brought some of the buds, with their roots, to the house and put them in water and found the sepals dropping in the same way. When the calyx, or any part of a flower, drops off early as this does, it is said to be *caducous*. How many petals are there and how are they arranged?

P.—There are eight or ten and they are arranged in two rows.

T.—Notice that the four in the outer row are a little longer than the others, and if we look at the top of the flower it appears square in outline. (Fig. 10.) Break one of the petals in two.

P.—The same red juice comes out of it that came out of the root.

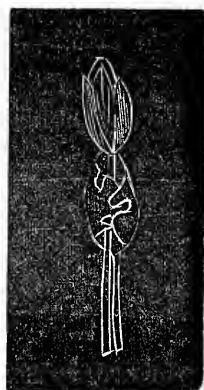


Figure 11.

T.—If you will break the leaf, or any part of the plant, you will find the same reddish juice exuding from it. How many stamens are there?

P.—There are twenty-four stamens, and here is another with only twenty-three.

T.—The average number of stamens is about twenty-four. Describe them.

P.—The stamens are hypogynous (Fig. 12 *a*), with white filaments, which vary in length, and the anthers are attached by their bases to the filaments.

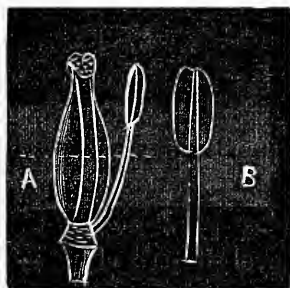


Figure 12.

T.—When anthers are attached to the filaments in this way they are called *innate* anthers. What kind of a pistil has the flower?

P.—The pistil is double and shaped something like a bottle. The stigma is two lobed and the style very short. The ovary is long, and has two seams running lengthwise on it.

T.—Cut across the ovary, as in fig. 12 (*a*), at the dotted line and see how the seeds are arranged.

P.—They are arranged on parietal placentæ, as they were in the ovary of the violet; but in this case there are but two placentæ.

T.—The seams or *sutures* on the outside mark the position of the placentæ on the inside, Fig. 13 (*b*), and if you will collect some of these ovaries when they are ripe you will find that the sides split off from the sutures and form two valves, as in Fig. 13 (*a*), leaving the seeds attached to the placentæ. The seeds themselves are brown when ripe and quite round, except outside, where there is a projection called

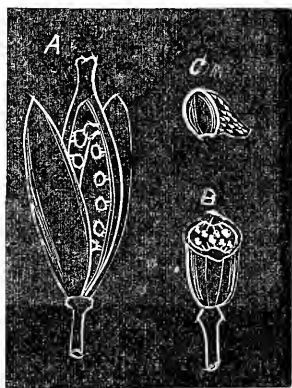


Figure 13.

the *crest*, Fig. 13 (c). The juice of this plant is acrid, and is used for medicinal purposes. It belongs to the family *Papaveraceæ*, a small but quite important family, on account of the medicinal qualities of its members. One of the most important of these is the opium poppy (*Papaver somniferum*), which is quite extensively cultivated in Europe and Asia, for the opium which it yields. The latin name for the Blood-root is *Sanguinaria Canadensis*.

ANALYSIS.

Plant.—Perennial, acaulescent, glabrous, all parts abound in a red juice.

Root.—Fibrous, growing from the thick root-stock.

Stem.—A fleshy rhizome, horizontal, full of red acrid juice.

Leaves.—One to each flower, radical, petiolate, rounded, palmate, seven to nine lobed.

Inflorescence.—Radical, single flowered scapes with bud infolded by the leaf.

Flower.—One on each scape, outline of petals a square, white or pinkish, perfect, complete.

Calyx.—Greenish, very smooth, *sepals*, 2, caducous.

Corolla.—Polypetalous, white, double *petals*, 8 to 12 oblan-ceolate, widespread, 4 outer longer than others.

Stamens.—About 24, hypogynous on the receptacle, *anthers* innate, oblong yellow. *Filaments* white, of different lengths.

Pistil.—One, double, two carpels, green, sutures on sides. *Stigmas* two, sessile or styles very short. *Ovary*, bottle-shaped, one-celled, two valves. *Seeds*.—Crested, attached to two parietal placentæ.

THE cost per capita for instruction in the Philadelphia schools last year was \$18 90. The number of pupils enrolled was 103,567, the average attendance 92,381. The salaries of the teachers per pupil in average attendance are only \$10 90 for the year.

A SPELLING LESSON.

THE following cleverly told story furnishes an admirable spelling lesson for advanced scholars :—

“The most skillful gauger I ever knew was a maligned cobbler, armed with a poniard, who drove a pedler’s wagon, using a mulleinstalk as an instrument of coercion to tyrannize over his pony, shod with calks. He was a Galilean Sadducee, and he had a phthisicky catarrh, diptheria, and bilious intermittent erysipelas. A certain sibyl, with the sobriquet of ‘Gypsy,’ went into ecstasies of cachinnation at seeing him measure a bushel of peas, and separate saccharine tomatoes from a heap of peeled tomatoes without dyeing or singeing the ignitable queue which he wore, or becoming paralyzed with a hemorrhage. Lifting her eyes to the ceiling of the cupola of the Capitol to couccal her unparalled embarrassment, making a rough courtesy and not harassing him with mystifying, rarefying, and stupefying innuendoes, she gave him a couch, a bouquet of lillies, mignonette, and fuchsias, a treatise on mnemonics, a copy of the Apocrypha in hieroglyphics, daguerreotypes of Mendelssohn and Kosciusko, a kaleidoscope, a dram phial of ipecacuanha, a teaspoonful of naphtha, for deleble purposes, a ferule, a clarionet, some licorice, a surcingle, a carnelian of symmetrical proportions, a chronometer with a movable balance-wheel, a box of dominoes, and a catechism. The gauger, who was also a trafficking rectifier and a parishioner of mine, preferring a wooden surtout (his choice was referable to a vacillating, occasionally-occurring idiosyncrasy), wofully uttered this apothegm: ‘Life is checkered, but schism, apostasy, heresy, and villainy shall be punished.’ The sibyl apologizingly answered, ‘There is notably an allegeable difference between a conferrable ellipsis and a trisyllabic diaeresis.’ We replied in trochees, not impugning her suspicion.”—*New York School Journal.*

READING IN SCHOOLS.

OUR personal reading is for information, or recreation, and in order that we may gain either from it, it is necessary that we understand the meaning of words singly and in combination. It is not necessary that we should be able to pronounce them correctly; they appeal to sight rather than to hearing, and a deaf mute may read and understand what he reads, with no appreciation of the spoken words. It is true that from the force of habit we think largely in words, and in silent reading we may mentally pronounce the words and even call the organs of speech into partial exercise, but this is not an essential part of the process.

But reading is sometimes practiced with the view to communicate thought to others. Then there should be correct pronunciation, proper emphasis and inflection, suitable pauses and the like; in a word, the rules of elocution should be observed.

In practical life, the majority of us have occasion to read silently ninety-times out of a hundred.

In view of these facts, is there not, relatively, too much time spent in our schools in what pertains to elocution, and too little in what pertains to thought? It is indeed important for the child to be taught to pronounce words correctly at sight, but more important for him to grasp the thought embodied in those words.

Our practical suggestion to teachers is this:—strive in all practicable ways to lead your pupils to *understand* what they read. In that way you will best prepare the great majority of them for the active duties of life. Those who are to become public speakers or elocutionists should have special training, such as cannot properly be given in the public schools.—T. C. RICHMOND, in the *Brodhead Independent, Wis.*

CALIFORNIA, which now has one excellent Normal School, is about to establish another.

FIRST LESSONS IN AGRICULTURE.

FARM MANURES.

IV.

48. Much of the vegetable produce grown upon the land has to be kept upon the farm, and reduced into such a condition that it can be again added to the soil as manure. If we take a crop of wheat as an example, the corn is separated from the straw, and the corn having been sent to market, the straw is used for stock, and finds its way to the manure heap after it has been so used. Other crops, such as those known as root crops—mangels, turnips, swedes—are consumed by stock on the farm; and the green crops, such as clover, vetches, rape, mustard, &c., are similarly used. These crops are therefore used for a twofold object—first, to produce meat, wool, milk, cheese and similar marketable products; and, secondly, *to produce manures for the land.*

49. There are two ways in which this vegetable matter is added to the land as manure. When sheep and other stock are fed with it upon the land, the excrement of these animals conveys to the soil those portions of their food which have not been added to their bodies, or used in the support of their warmth. This excrement *returns to the soil* very valuable *inorganic and organic matter* which the plant had *originally drawn from the soil*, and so far as these matters are restored to the land, so far its exhaustion is checked. In the table already given (41) you have seen how largely crops of turnips—which are usually fed on the land—draw upon the soil in their growth; if therefore you return this matter to the soil, from a chemical point of view, you render it almost as capable of producing another growth as it had previously been.

50. In the form of *farm-yard manure* another large portion of this vegetable matter finds its way back to the land. The course of operation is not as simple in this case, for whilst in the former instance the manure became quickly intermingled

with the soil, in this case it has to be preserved until it can be carted to the land. In the necessary treatment which this manure has to undergo there is a great *liability to loss*.

51. The production and management of farm-yard manure are based upon certain principles which are easily understood. This manure consists of the straw, or other litter or bedding for the stock, and of the excrements the stock may produce. It is well known that the excrement of the different kinds of stock kept upon a farm varies very considerably. That from horses ferments rapidly and gets very hot, that from cattle is slow to ferment and is consequently a cool manure, whereas the manure obtained from pigs is intermediate. One of the first things to be secured is *an even distribution* of the different kinds of manure, so that the bulk of manure may have a *similarity of character*. This is most necessary, if any measures are to be adopted for regulating the fermentation; *otherwise one portion is too hot*, and another portion *is not hot enough*, and that treatment which is favorable for one part is injurious for another. *An even distribution* is therefore *the first essential*; this being secured, the fermentation of the heap can be readily controlled.

52. This fermentation may be familiarly described as a decay or rotting, brought on by the decomposing influence of the nitrogenous matter present, whereby the non-nitrogenous matters present also undergo decomposition. The chief products of this decomposition are *ammonia*, and either *carbonic acid*, or some one or more of the *organic acids*, such as the *ulmic acid* or *humic acid*. The ammonia is formed from the nitrogenous matters in the manure, and the non-nitrogenous matters may yield either carbonic acid or the organic acids we have named above, according to the manner in which the decomposition of the manure takes place. If the manure be allowed to get dry and hot, then carbonic acid is formed; but if the manure be kept moist, one of the organic acids is produced. If *carbonic acid* be formed, it combines with *ammonia*, and we have *carbonate of ammonia* formed. This is a very

volatile and pungent smelling salt, of which you will have very little doubt after you have once experienced its influence. But if instead of carbonic being formed, we get one or more of the organic acids produced, then you have, say, *ulmate of ammonia or humate of ammonia* formed, which has a very different character. You have probably seen the *black streams which run from manure heaps*. These usually contain humate and ulmate of ammonia. This drainage is black and often offensive; but it is not in any way pungent, and the reason of this is, that *the ammonia is not present as carbonate of ammonia*.

53. The successful fermentation of the manure heap is very largely dependent upon the *temperature* at which it is allowed to proceed. The chief condition of success is to avoid loss. If the ammonia formed in the heap be allowed to take the form of a *carbonate of ammonia and pass away* into the air, the work is a failure by reason of *the most valuable portion* having been *lost*. If on the other hand the fermentation be so controlled that *the ammonia is preserved* then we may fairly consider *the management a success*.

54. The temperature may be easily regulated by a judicious use of water. *The manure should be kept moist* without being drenched, and the soakage from the manure should be used for this purpose. You may naturally enquire how you are to know when the manure requires more water? If on moving any portion you find any pungent smell of ammonia, be satisfied that it requires to be moistened; or if you find the manure dry or having a mildewed appearance, you may know that it should have been moistened long before then. A want of care in this respect involves *great losses* every year, for the ammonia lost is our most expensive manure.

55. You must also understand that there is another way in which this ammonia is lost, and that is, by allowing *too much water* to fall upon it, and wash out the black matter already referred to, and this too often runs into the roads and ditches, and is lost. Farm-yard manure is thus seriously injured, from, want of proper care, until its valuable con-

stituents are either sent into the air or washed into the ditch. Very imperfect ideas are entertained of the enormous losses which are thus suffered by men, who would not willingly throw money away, and yet what they waste in their farm-yards they have often to pay for in hardly-earned gold.

56. The extent to which the fermentation of farm-yard manure should be carried depends very much upon the character and condition of the land to which it is going to be applied. If the land should be a sand, or a sandy loam, the manure should be added as short a time as possible before the crop is going to be sown, in order that there may be less time for it to waste away in the soil. These soils from their want of power to hold a manure—that is, to preserve the manure from this wasting away—cannot be safely trusted to take proper care of it, and therefore it should not be added to the land until you are going to sow a crop which will quickly make use of it. In order that the crop may be able to use the manure quickly, it must be ready for use, or, in other words, the fermentation must have been carried on so far that it has become thoroughly rotten.

57. The circumstances are just reversed in the case of clay and clay-loam soils. These possess the power of holding manure in safety, and they are improved in their mechanical conditions by the use of manure which has been but slightly fermented. Upon these soils the fermentation of the manure may be safely permitted to take place after its addition to the land.

58. The rapidity of fermentation is regulated by the admission of air to the heap of manure. If it be desired to make farm-yard manure ferment more quickly, it is turned over so as to lie lightly; but if fermentation has to be checked, it is trodden down into a compact mass. A properly controlled fermentation will preserve the ammonia; but if it be neglected, the most valuable constituent of the manure will be thrown into the air.

THE ART OF THINKING.

THE three leading characteristics of healthy thought are *clearness*, *comprehensiveness* and *quickness*, and although it may tax the powers for a considerable time, it should be the object of the educator to train an intellectual energy by which the most vivid impression of a subject should be presented to the mind, not merely by itself, but with all its attendant relations and bearings, and this distinct and compendious view reached by the most rapid and immediate perception. On many subjects this rapid insight into the core and the circumference of subjects is impossible, even with profound and accomplished thinkers; but the well-trained mind will be so fitted for intellectual gladiatorship, that most of the sophistries that cross the path of ordinary life will be cloven through at once as with a two-edged sword.

We must not only learn, but we must learn how to use our learning. Thought must teach us how to use our mental stores; it is not mere reading or even accumulation—this may lead to congestion of the brain—a swamp in the understanding. The man who desires a fountain in his garden will not obtain it by pouring pailfuls of water there—but he may get a swamp. The mental stores and store-houses should be like other stores. Much, no doubt, gets into the stores which does not reach the exchange and the cottage. But for what are the first but to minister to the intentions of the last. Eating may be pleasant work, but there may be eating without digestion, Yet it is only by the last that we have health. Thought is a worker in three great factories—minds, things and words. It is thought which needs especially to be cultivated.

Another great indispensable preliminary to correct thinking is method. It is, in truth, the very body of the art of thinking. All that logic can do is to methodize our thoughts—it does not profess to give us thoughts. As rhetoric professes to teach us the arrangement of our diction, so as to make words

in their application effective, so logic professes to teach us how to arrange our reason and our ideas, so that they may wear the most complete appearance. Method, therefore, we say, should be studied. First arrange your own ideas, and you will be the better able to detect the discordancy of those which may be presented to you, even by some of our great men. Upon being admitted into the chambers of their intellect, we behold the wardrobe and vestments of their minds scattered about in ridiculous disarray; and whenever this is perceived, although you admire the genius, it is certain you lose a large amount of your previous confidence in the teacher. Methodic minds move in a solar pathway, and they leave a track of light after them in the path along which they travel.

At the same time that all this is said, I must say that method itself, system, should be worn gracefully, not obtrusively, in the mind and in the life—within the life, not upon the life—even as an eminent writer says: “Our skeletons are inside our bodies; so, generally, ought our systems to be inside our minds.” I hate to see a method worn like a straight waistcoat.

Indeed this sort of thinking is what is meant by logic, or the science of inference. But logic has usually been studied merely as an intellectual amusement. As it has usually been studied, it is wholly unfitted for the pugilistic gauntlet of the man of the world. The art of sound thinking and right reasoning will be obtained more readily by an earnest perusal of “Locke on the Understanding,” Butler’s “Analogy,” Lyell’s “Geology,” Herschel’s “Natural Philosophy,” or even from following out the higher order of legal evidence than from all the volumes of mere logic ever written or read.—*Paxton Hood, in Canada School Journal.*

A BILL has been introduced in the Kentucky Legislature providing for the establishment of two normal schools—one for white and the other for colored teachers.

HOW TO WRITE WELL.

WE believe that the whole of this method is a mistake, that there is no single system of *mecanique* for writing, and that a child belonging to the educated classes would be taught much better and more easily if, after being once enabled to make and recognize written letters, it were let alone, and praised or chidden not for its method, but for the result. Let the boy hold his pen as he likes, and makes his strokes as he likes, and write at the pace he likes—hurry, of course, being discouraged—but insist strenuously and persistently that his copy shall be legible, shall be clean, and shall approach the good copy set before him, namely, a well-written letter, not a rubbishy text on a single line, written as nobody but a writing-master ever did or will write till the world's end. He will make a muddle at first, but he will soon make a passable imitation of his copy, and ultimately develop a characteristic and strong hand, which may be bad or good, but will not be either meaningless, undecided, or illegible. This hand will alter, of course, very greatly as he grows older. It may alter at eleven, because it is at that age that the range of the eyes is fixed, and short-sight betrays itself; and it will alter at seventeen, because then the system of taking notes at lecture, which ruins most hands, will have cramped and temporarily spoiled the writing; but the character will form itself again, and will never be deficient in clearness or decision. The idea that it is to be clear will have stamped itself, and confidence will not have been destroyed by worrying little rules about attitude, and angle, and slope, which the very irritation of the pupils ought to convince the teachers are, from some personal peculiarity, inapplicable. The lad will write, as he does anything else that he cares to do, as well as he can, and with a certain efficiency and speed. Almost every letter he gets will give

him some assistance, and the master's remonstrance on his illegibility will be attended to, like any other caution given in the curriculum.—From "*Learning to write*," in *Popular Science Monthly* for April.

NOTES ON EDUCATION.

A bill providing for compulsory education has just been passed by the Iowa Legislature. The forfeiture incurred by parent or guardian for not sending a child to school is \$20.

A petition signed by over 1,200 women of Cincinnati praying the Ohio Legislature to enact some law which will take the control of the public schools out of the hands of ward politicians, has been presented to that body.

There are said to be 20,000 children in Chicago who get no schooling whatever, and 7,000 in the schools who for lack of proper accommodations can only be taught half a day. This is not a pleasant report of a city which prides itself on "Western progress."

The Prussian Minister of Education complains that the steady increase of crime and immorality in the great towns of Germany during the last ten years has had an effect upon the teachers of elementary schools; and that the tone of the class has degenerated in all the chief centres of industry except Berlin. He thinks, moreover, that the teachers have been spoiled by too much attention, politicians having vied with each other in the attempt to win their support, and he attributes their demoralization also to the increased facilities for drinking which have been provided by recent legislation, and which has injuriously affected large sections of the community.

During a practical examination of the Quincy schools, a correspondent of *The Philadelphia Ledger* asked the teachers if it didn't exhaust them to give out so much to their classes, instead of simply hearing recitations. The teachers answered that on the contrary, the new method was not half so wearing

as keeping up attention to the book, and going over the recitation by note. They said, too, that discipline was more easily maintained than by the old system, since the pupils are busy and interested, and have room for their activity; the child is free—it is not afraid to talk to its teacher and it is too busy to whisper to its neighbors. The restlessness and the inquisitiveness of the children are used to good account instead of being sternly repressed, and consequently finding vent in naughtiness.

PRINCIPLES to be thoroughly understood by every teacher:

1. Activity is the law of childhood; accustom the child to do, and educate the hand.

2. Cultivate the faculties in their natural order, first form the mind, then furnish it.

3. Begin with the senses, and never tell a child what he can be led to discover for himself.

4. Reduce every subject to its elements, one difficulty at a time is enough for a child.

5. Proceed step by step, be thorough, the measure of information is not what the teacher can give, but what the pupil can receive.

6. Let every lesson have a point, either immediate or remote.

7. Develop the idea, then give the term, cultivate language.

8. Proceed from the known to the unknown, from the particular to the general, from the concrete to the abstract, from the simple to the difficult.

9. First synthesis, then analysis, not the order of the subject, but the order of nature.

10. Fasten every principle by frequent repetition.—*Iowa Course of Study.*

EDITORIAL.

It is too early yet (March 30), to say with any certainty what the Legislature is going to do in reference to education. But it is not likely that any important changes will be made. The colleges and academies and the Normal School have all been under fire, but they have not suffered as yet. No new arguments have been adduced in opposition to them, and indeed few arguments of any kind. The staple seemed to be "The State is only bound to give a common school education. It is not just to compel me to pay for sending your son to college." It did not occur to any one to retort, "It is not just to compel me to pay for sending your son to the penitentiary." The simple truth that public education is not supported for the benefit of the individual, but for the benefit of the whole community is equally applicable to colleges as to primary schools. It is for the advantage of the public that some men should be highly educated, who are not able to pay the expense of higher education. "It is not fair," said one speaker, "that five or ten young men out of a county should be selected to receive a collegiate education. They have no more right to such a benefit than the thousands who are not selected. What we cannot give to all we should not give to any." This would be true, if the advantage of the individual were the object. But as the good of the the State is the end in view, the State has as much right to select students in time of peace as to select soldiers in time of war. The most important part of the whole question—how shall the State get the best value in return for money expended for higher education—was not once alluded to. In all probability the State will go on paying the money for some time longer before this question of "value received" attracts the attention it deserves.

THE House Committee appointed to visit the State Normal School performed that duty, but the official report has not yet been made. Of the nine members on the committee, eight were present and spent six hours in a close and careful examination. The ninth man, *who was not present*, made a violent attack on the school in the house. Seven of those who were present made strong speeches in its favor. No man who had ever visited the school, or who derived his information from one who had visited it, had a word to say in opposition. The school was sustained by a vote of 39 to 31; not a large majority, but very satisfactory when it is remembered that at the last session the House voted to abolish the school by a majority of 18. The world moves.

Since the above went to press we have learned that the committee have

met and agreed upon a report highly commending the Normal School, both in regard to its purpose and its management.

NEW YORK has very wisely opened the doors of the public school management to women. True, the measures so far adopted are very imperfect (owing no doubt to hasty legislation), but they are a very important step in the right direction. Women are eligible to election or appointment as school officers of all grades, from the lowest to the highest. In New York City they can serve as trustees, inspectors or commissioners, and throughout the State they can direct the educational interests of town or country. Unfortunately the bill only allows women to vote at "school meetings;" and not all women at these, only those who "have the qualifications required by law." That is to say, only those who actually own or hire real estate that is liable to taxation in the school district.

BOOK NOTICES.

GINN & HEATH, Boston, 1880, have published a "Brief History of Roman Literature," translated from the German of Henry Bender by E. P. Crowell and H. B. Richardson, Professors of Latin in Amherst College. For the Third and Fourth "Periods" (from Lucretius to Quintilian), this "brief history" may be read with pleasure and profit. For the rest, it is necessarily little more than a catalogue of names and dates. The following extract gives a favorable specimen of the author's style, when he is at his best: "*Virgil* and *Horace*, though sustaining relations of intimate friendship, still form in many respects a contrast to each other. *Virgil* was tall, lank, sickly in appearance, stiff, and almost offensively awkward in his movements; *Horace*, short and thick-set, sleek and well-favored, moving in society with the ease of a man of the world; *Virgil*, shy, slow and stammering in his speech; *Horace*, ready in conversation, witty, and sharp, upon occasion; *Virgil*, a feminine, gentle, introspective nature; *Horace*, cultivated by contact with the world, grasping outward circumstances with sure hold, and using them for his purposes; *Virgil*, a man of the heart, religious and earnest; *Horace*, a man of the understanding, with a bent toward philosophic calm, undisturbed either by external things or by passion; *Virgil*, devoting himself from conviction to Augustus as his benefactor, and the author of universal peace; *Horace*, with all his devotion, still keeping at such a distance as to insure independence; *Virgil*, as a poet, rhetorical and lofty, of almost feminine gentleness and tenderness; *Horace*, natural, clear, transparent, full of manly, self-reliant consciousness."

"STORIES of the Old Dominion from the Settlement to the End of the Revolution," by John Esten Cooke. New York: Harper & Bros. A book in which boys will delight, and girls too. It contains "The Adventures

of Captain John Smith," "Why Virginia was Called 'The Old Dominion,'" "The Great Rebellion in Virginia," "The Knights of the Golden Horse Shoe," "George Washington, the Young Surveyor," "Washington in the Wilderness," "Braddock and his Sash," "Point Pleasant, and the Death of Cornstalk," "Patrick Henry, the Man of the People," "Thomas Jefferson, 'the Pen of the Revolution,'" "A Ball at the Capitol," "Lord Dunmore and the Gunpowder," "Elizabeth Lane, the Story of a Brave Girl," "The Fate of Colonel Rodgers," "The Capture of Vincennes," "John Marshall, the Chief-Justice," "John Randolph of Roanoke," "Rosewell, and Selim the Algerine," "Morgan, the Thunderbolt," "Cornwallis and the Boy Lafayette," and "The Surrender at Yorktown." We cordially commend these little histories as interesting and instructive reading for schools and families; and if a grey-beard should happen to take it up of a warm afternoon, he will not willingly lay it down till he has finished it.

WE have received from Davis Bardeen & Co, Syracuse, New York: "Half a Hundred Songs for the School-room and Home," by Hattie Sanford Russell—new words for old tunes; also, "The Elements of Education," by Charles J. Buell, a paper read before the Alumni of the State Normal and Training School at Cortland, New York, and published by request; also, "Politics and Schools," an address delivered at the annual meeting of the Association of School Commissioners and City Superintendents of the State of New York, by the President, Sydney G. Cooke. Both of these educational pamphlets evince clear conceptions, close reasoning, and sound conclusions.

THE *Oriental and Biblical Journal* (Jameson & Morse, Chicago, \$2.00 per annum), is probably the latest addition to our quarterly magazines. The object of this magazine is to give results of latest researches in all Oriental lands. It will also embrace many subjects of a more general character, such as the manners and customs of all nations, their traditions, mythologies, and religious notions, as well as language and literature; and everything that may serve to illustrate the history of the human race, or confirm the truth of the Scripture record. Rev. Selah Merrill, D.D., Rev. Howard Crosby, D.D., Rev. James Strong, D.D., Rev. Lyman Abbott, D.D., Rev. T. O. Paine and Rev. A. H. Sayce, D. D., F. R. S., of Oxford, Eng., are among the noted contributors.

Montieth's Easy Lessons in Popular Science (A. S. Barnes & Co.), ought to be entitled "De omnibus rebus et quibusdam aliis." So far as unity of plan or purpose is concerned it is as far removed as possible from the ordinary text-book type. Perhaps it is for this very reason—its oddity and its many sidedness that we like it. Currents of air and ocean, ships and windmills, towers and bridges, men and trees, mines and bal-

loons, birds and volcanoes, insects and light-houses—all this and something more “*nostri est farrago libelli.*” And yet we like it, and would desire nothing better than a bright class of ten year old children to gossip with about it.

Golden Days (James Elverson, Philadelphia, \$3.00 per annum,) bids fair to become a great favorite with the young, especially boys, and certainly deserves to do so. It is a weekly of sixteen pages, filled with interesting and even instructive stories, sketches and serials, and everything else that goes to make up a youths' paper. The illustrations are profuse, appropriate and well-cut. The design of this paper is to supply the demand of the day for cheap literature by furnishing boys and girls with a weekly which shall equal in interest and far exceed in quality the trashy papers which have taken such a hold on our youths. We heartily wish it success.

LAWNEY'S *Historical Chart of England* (Claxton, Remsen and Haffelfinger, Philadelphia), will be found a valuable aid to the study of English History. It presents the most important facts from the Norman Conquest to the present time, in a form calculated to make an impression in the memory. It can be used with any text-book of English history; taken in connection with Green's Short History, the very best results would be obtained.

THE *Outlines of Determinative Mineralogy*, by C. Gilbert Wheeler (S. J. Wheeler, Chicago), will prove of service to the young student. With this little manual in one hand, a hammer in the other and a pair of stout shoes on his feet he may make his tramps available for physical recreation and the gathering of useful and interesting information

THE *Popular Science Monthly* for April well sustains its reputation. The leading articles are as follows: “Progress and Poverty,” “What is Jupiter Doing?” “The Scientific Aspect of Free-Will,” “Experimental Legislation,” “Vegetable Phosphorescence,” “Croll's Climate and Time,” “Sketch of Dr. Charles F. Chandler,” etc.

THE *Johns Hopkins University Circular* for February is especially devoted to Mathematics and Physics. The *Circular* contains full information with regard to the work done, doing and in prospect, as well as a list of the students and professors engaged in the above studies.

THE *Sunday School Hymnal* (A. S. Barnes & Co., New York), is all that it pretends to be, “a collection of suitable hymns, set to simple and melodious tunes,” and is well adapted to use in the Sunday School.

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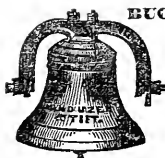
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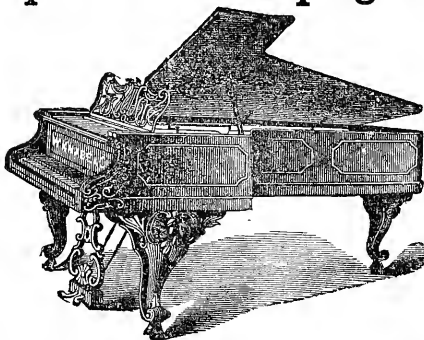
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REPORT OF THE COMMISSION TO ENQUIRE
INTO THE PUBLIC SCHOOL SYSTEM
OF BALTIMORE.

We give the most material parts of this Report in the words of the authors, omitting nothing that can be considered essential to a right understanding of the conclusions at which they have arrived on the questions presented. Where we differ from the views given in the Report we have freely expressed our own opinions.

ORGANIZATION OF THE SCHOOL BOARD.

After mature deliberation and the fullest discussion, we have determined to recommend that a new Board be constituted. This Board is to consist of nine members, to serve, as at present, without compensation; the members to be appointed by the Mayor from the city at large, without reference to political affiliations, and subject to the confirmation of the two Branches of the City Council in joint convention; each member to hold office for six years or until his successor is appointed, and the term of office of three members to expire every alternate year. In this Board should be vested the supreme legislative, executive and judicial powers in all matters appertaining to the schools, and which are by the present law delegated to the existing School Board.

We further recommend that the office of Supervisor of Schools be created, and that forty Supervisors be appointed—

two from each ward in the city—the appointments to be made by the Board of School Commissioners. The Supervisors are to serve without compensation, for two years, one Supervisor from each ward retiring every year, and are to reside in the ward for which they are appointed. The schools are to be apportioned among the Supervisors by the Board. The duties of the Supervisors will be to visit and inspect the schools, and especially to look after the cleanliness, ventilation, heating and repairs of the school-houses. They are also to observe and report to the Superintendent of Public Schools or to the Board of Commissioners, all departures in the schools from the regulations and rules of discipline and any want of efficiency in teaching; to issue permits to scholars to enter the schools; to decide who are to pay for books and who are not. They are also to appoint and control the janitors of the school-houses; to temporarily fill vacancies in the corps of teachers, and to make recommendations of such substitute teachers as faithfully discharge their duties; and perform such duties connected with the local administration of the several schools as the Board may impose on them. But they are to have no power to interfere directly with the conduct of the schools.

The proposed reorganization consists of three parts: 1st, the number of School Commissioners is reduced from twenty to nine; 2d, the appointments are to be made by the Mayor from the city at large, without reference to political affiliations; and to hold good for six years instead of four; 3d, there are to be forty Supervisors appointed by the School Board and acting under their orders.

That nine Commissioners will make a more manageable and probably a more efficient Board than twenty may be conceded; that the extension of the term, from four years to six, would be an improvement may also be granted. But the Commission seems to be aware that nine unpaid members cannot do the required work, and hence the necessity for additional machinery. We object to the forty Supervisors whom it is proposed to put in the place of the eleven displaced Commissioners; we object also to the duties assigned to them.

We object to the appointment of Supervisors on the general principle that it is an evil to have any machinery interposed between the teachers and the authorities by whom they are elected and to whom they are ultimately responsible. It may be necessary to have some such machinery;

and a necessary evil may be tolerated, but should not be extended beyond the necessities of the case. Between the seven hundred assistant teachers in this city and the School Board by which they are appointed and paid, there are already two intermediate authorities,—the Principal of the School and the Superintendent. So much may be necessary; a part of it is even now hard to bear; any more would be intolerable. A teacher's life would be a miserable burden if she had to humor, first her Principal, secondly her Superintendent, thirdly her Supervisor, and fourthly the member of the Board to whom she owes her appointment; for, doubtless, the patronage would be distributed among the nine as it is now among the twenty.

We object, again, to the duties assigned to these Supervisors. They are to "look after the cleanliness, ventilation, heating, and repairs of the school-houses." Now, as "to cleanliness, ventilation and heating," no one can look after them so well as the Principals of the Schools. It is a very important part of the duties which they are paid for attending to. They are on the spot, and in point of fact would have to look after these details if there were four hundred Supervisors, without pay or patronage, appointed for that very purpose. As to "repairs," there is, or should be, a public officer paid to attend to them.

The Supervisors "are also to observe and report to the Superintendent all departures," etc. Now here there is altogether too much reporting. The Assistant reports to her Principal, the Principal reports to the Supervisor, the Supervisor reports to the Superintendent, and the Superintendent reports to the Board. Too much red tape! But there is worse to come than mere red tape. The Supervisors are also to report "*any want of efficiency in teaching!*" The forty Supervisors will, in all likelihood, know as much about efficient teaching as Ali Baba and his Forty Thieves. They will no doubt be very respectable citizens, each of them duly skilled in his own business; but we cannot expect them to be experts in the Art of Teaching. It is as much, we think, as our Superintendents can do, whose whole time is devoted to this special duty, to determine on the efficiency of the teachers. It is possible that the Supervisors might appoint "Janitors, and see that the school-house is warmed and cleaned (though the Board could do the one and the Principal the other much better); but as to judging of the efficiency of a teacher, they would have neither the time nor the talent, nor the acquired experience that would fit them to do it. If they were paid for it, and would devote ten years to learning their business, it is barely possible than one-half of them might obtain the necessary skill. In short there is no duty suggested for these proposed Supervisors, that could not be better performed by the Principals, the Superintendents or the Board of School Commissioners. The idea is not an original one; it is a *Boston notion*, and in its own home has already fallen into discredit, and will soon fall into disuse. But this part of the Report was probably written from information obtained two years ago. They learn very rapidly at the Hub.

APPOINTMENT OF TEACHERS.

At present the teachers are selected in the following way: The power to appoint teachers is vested in the School Board. Applicants for positions are examined semi-annually by the Superintendent, Assistant Superintendent and a committee of the Board, who give certificates, good for three years, to successful candidates. Those holding these certificates—graduates of the State Normal School, graduates of the High Schools who have received the Peabody medals, and those who have been examined and hold certificates from the Superintendent of the State Normal School—are eligible to the position of teacher. From these the selections and nominations are made by the members of the local committee having charge of the school in which there is a vacancy. The nomination, in most cases, results in an appointment. A novice is generally subjected to a probation of ninety days, at the expiration of which time he or she may be appointed. Several objections may be urged against this method:

There are too many classes of persons admitted to the list of those who are eligible. We think the power to test the qualifications of teachers should be committed exclusively to the City School authorities, and that all applicants ought to be subjected to a special examination by the Superintendent and Assistant Superintendent of the Public Schools. The standard of the examination should be high, and the list of persons eligible kept down to such a number as by experience is found to be sufficient to furnish the demand for teachers.

The large number on the list as at present made up leaves room for political and social and other considerations in determining the selection. The teachers should be selected solely with reference to merit and fitness.

It is, doubtless, impossible to adopt any method which will entirely exclude incompetent or inefficient teachers; but from the evidence before us there are more incompetent and inefficient teachers in our schools than there should be, and we

are satisfied that the number may be greatly reduced by adopting the method of selection which we herein recommend.

We, therefore, recommend that the examinations for teachers be placed at a standard which will keep down the list of those eligible to such a number as is sufficient to supply the demand; that the examinations for teachers be competitive; that is, that those attaining the highest grade be entitled to the first appointment; that in the examinations for the higher positions, those holding inferior positions in the schools are to have certain advantages allowed them proportioned to the time they have served in the schools and the success with which they have performed their work, thus holding out to the teachers an opportunity for promotion and a stimulus to study and faithfulness. When a teacher is for the first time appointed, he should hold his position on probation for one year, and his work for that year should be closely watched. This plan could be so modified as to have males only eligible to certain positions and females to others.

At present the teachers hold office for one year, and the position of every teacher is vacated once every year, and is filled by election. The only advantage claimed for this system is, that it is easier to remove incompetent teachers indirectly, by not electing them at the annual election, than by directly removing them. Against it we would urge that the direct method is generally better than the indirect; that, from the number of incompetent teachers, which the evidence before us satisfies us are now in the schools, this system has not the advantages claimed for it; and that, even with the system in force, it is frequently impossible to remove teachers for incompetency or inefficiency. In addition to this, notwithstanding the fact that, as a rule, competent teachers are re-elected, we have evidence which convinces us that the annual vacation of the positions of the teachers creates, in many of them, a sense of insecurity in office. To many of them the annual recurrence of the election brings a period of alarm, when they have to look to their interests. This is calculated to disturb

them in the regular discharge of their duties, and to create a subserviency to the particular commissioner or commissioners who have to make the nominations for the positions, while it encourages in the commissioners the idea that the appointments are a patronage which they are entitled to dispense.

We, therefore, recommend that the tenure of the office of the teachers be during good behavior ; it being in the power of the Board to remove for incompetency, inefficiency, bad conduct or bad character, and to honorably discharge those incapacitated by age.

With the general tenor of these remarks we heartily concur. We need better teachers. They should be carefully selected at first. There should be a period of probation. After the expiration of this period, the tenure of office should be during good behavior. But we do not believe that the number of "incompetent and inefficient teachers" would be "greatly reduced by adopting the method of selection" recommended by the Commission. That method differs from the present simply by making a competitive examination by the Superintendents the basis of eligibility. It is founded on two assumptions, both of which experience has proved to be false: First, that those who pass the best examination in the higher branches of school learning, are likely to make the best teachers of the lower branches; secondly, that there is some peculiar virtue in the office of Superintendent which makes that officer a more faithful and efficient examiner than any other person. The purpose being merely to secure the best teachers, the standard of examination is to be made high, so high as to exclude all except the number of teachers needed to supply vacancies, and appointments are to be made in the order of merit, as thus determined. Now the practice is at present (and the Commission does not propose to change it) to place new teachers in charge of the lowest grades. The Commission, therefore, asks us to believe that the fitness of a person to teach a child of six years of age can be best ascertained by an examination in History, English Literature, Etymology, and Mathematics so high that the thirty recipients of the Peabody medals (selected by competitive examination from among eighty or ninety graduates) shall be unable to pass it. Let it be remarked, in passing, that the system of competitive examination does not seem to be favored by the Report, unless it be administered by the Superintendents. For the Peabody medallists have been instructed in all the learning of the Schools and in far more than they will be required to teach, and they are chosen by a competitive examination extending through a year and conducted by a method which excludes, as far as possible, the disturbing elements of accidents and favoritism, and

yet this is one of the classes of candidates to which the Report makes special objection. It is, therefore, not simply a competitive examination that the Report relies on for the reconstruction of our corps of teachers, but a competitive examination conducted by the Superintendents. The Principal of the High School, with a knowledge of a young lady's ability and acquirements, derived from four years' observation, aided by the records made by a corps of able teachers through the same period, is less able to form a correct opinion than the Superintendent after an examination which lasts perhaps four hours! But suppose that by a change of fortune, or of School Commissioners, next year, the Principal and the Superintendent should exchange places—many things quite as unlikely have come to pass—which of them would then be the better judge? Would the divine afflatus adhere to the person, or would it cling to the office by a kind of apostolical succession. The thought tempts us to enlarge; but we must content ourselves with saying that a system which would virtually commit the selection of eight or nine hundred teachers to the judgment of a single officer must first provide us with Superintendents whose judgment is unaffected by human frailties and undisturbed by human passions. The system of checks and balances, of equivalent and counterpoise, on which the government of every free State is founded is equally applicable to our free schools. With regard to the principle of competitive examination by whomsoever administered, let us say briefly that while an examination may, under some circumstances, be necessary in order to ascertain that a candidate has sufficient literary and scientific knowledge for his position, yet a single written examination is by no means the best method of determining that fact; and the principle of competition cannot be admitted, for it not unfrequently happens that the very best scholar makes the very worst teacher.

POWERS OF TEACHERS.

We would recommend that the control of the following subjects be committed to the teachers of each school, constituting a Board for that school—the principal of the school having a veto on the resolutions of such Board, which veto may be overruled by a three-fourths vote of the Board; the progress of the several classes during the session—the Superintendent of Public Schools fixing the *minimum*; the method of instruction; the advancement and degradation of pupils to and from classes; the arrangement of the order of the several studies—the Board of Commissioners having prescribed the amount of time to be devoted to each study; the assignment of lessons to

be prepared out of school; in all of these matters the Board of Commissioners are to have a revisory control.

It is much better to be careful in the selection of teachers, to leave them certain liberty of action and to judge their competency by the result of their work, than to attempt to raise or hold them to a standard by requiring conformity to rules. The true test of the teacher is to be found in the result of his work as exhibited by the progress of his scholars. The school examination should be as much a trial of the teachers as it is of the pupils. To make obedience to a multitude of regulations a test is to lose sight of the true criterion. If the trial of the teachers is recognized as one of the purposes of the school examinations, the effect will be of benefit to the examinations themselves. They will tend to lose their character as tests of the ability of the scholar to cram his mind by an exercise of memory with a mass of undigested knowledge, useful and useless, and will tend to become tests of his power to use his faculties on novel problems or in novel situations—a power far more valuable than any amount of merely memorized knowledge. Whatever awakens the teachers, the scholars, the school authorities to the fact that the true purpose of education is to teach, to *think* rather than to *know*, will be of incalculable benefit to the cause of education.

SCHOOL BOOKS AND COURSE OF STUDY.

The aim should be to teach a few things thoroughly rather than many things superficially.

The subjects should not be so abstract or complex as to be beyond the comprehension of the pupil; and for this reason grammar should be postponed to the higher classes, and the practical use of language and object teaching should be extended as far as practicable in the lower classes.

The aim should be to develop the child's faculties rather than to store his mind with knowledge. If he can acquire knowledge at the same time he is developing his faculties, it is, of course, desirable that he should do so. But the objec-

tions to the Public School education on the score that it is not practical, frequently ignore the fact that an education which improves the faculties is more practical than one which stores the mind with knowledge. The study of history, for example, by a child who can only memorize events and has no faculty to judge of their significance, is frequently an expenditure of time and study without commensurate advantage. This we say without disputing the fact that the study of what are called practical subjects, often gives a greater stimulus to interest than more abstract subjects.

Some attention should be devoted to the cultivation of the artistic sense, both on account of its direct benefits and of its indirect influence on the morals; and, therefore, some time should be given to music and drawing, and especial care should be given to the use and the modulation of the voice; to postures, standing, sitting or walking, and to tidiness and cleanliness as far as these can be controlled.

Most of the objections which we have heard urged against teaching music and drawing in the Public Schools, exaggerate their prominence in the system. They really occupy little time, and cost comparatively little; and it may be said in their favor that they do something to soften the manners, and thus influence to advantage the moral tone of the scholar. Anything is of advantage which tends to make the education given in the schools moral as well as intellectual.

Some time should also be given to physical exercise.

The direct moral training of the pupils is also a matter of prime importance.

Everything possible should be done to cultivate in scholars such characters and habits as will enable them to succeed in life.

Public education is now an established institution in all civilized countries. It is recognized as a duty which every society owes to itself, in order to maintain and improve its civilization; and every citizen, according to his means, should contribute to its maintenance.

Even if it were best to confine public education to mere rudiments—reading, writing and arithmetic—it appears to us best to have a limited number of High Schools. The promotion of the best scholars from the lower to the high schools is such a stimulus to the pupils of the lower schools, as to constitute a sufficient reason for the existence of the high schools. But, aside from this influence of the high schools, we believe they should be preserved for the direct benefit they accomplish. They contribute to furnish teachers, and to increase the number—now too small—of more highly trained men and women.

As an argument in favor of public schools, and a defence of the public school system in Baltimore, the Report will command the respect and sympathy of all intelligent readers. So far as it proposes to raise the professional standard of teachers, to enlarge their powers, and to render them independent of political or personal changes by abolishing the annual election, and making their office permanent “during good behavior,” it has justified the expectations of those who knew the high character of the gentlemen forming the Commission. They had very clear notions of certain things which ought to be done, but they were not equally clear-sighted about the way to do them. They saw the essential importance of having the very best *teachers*, but their range of vision extended only to the horizon of the very best *scholars*. To *know* and to be able to *teach*, are one and the same thing, at least, so far as the theory of the Report goes. One would think from reading it, that Providence had, in some mysterious way, rained down an unlimited supply of teachers upon the earth, and that all we had to do was to gather them in, and sift out the best by means of competitive examinations. It is not so thought in Germany, whose school system the Commission studied; nor in Boston, to which also they gave much attention; nor in New York, nor in Philadelphia, nor in St. Louis, nor in Cincinnati, nor in Chicago, nor in Richmond, nor in San Francisco, nor in Switzerland, nor in Belgium, nor in old England, nor in *the new Japan*. Almost all over the world, wherever public education is considered worthy of public support, the corner stone of the system is *the teacher*. Experience has proved to all who are willing to learn her lessons, that accident and self-interest cannot be relied on for filling the schools with able teachers; and, therefore, the systematic training of teachers for the special work of teaching is an essential part of every school system that is worth studying. On this subject the Report has not a word to say, except to express indirectly the opinion that the diploma of a Normal School, obtained perhaps by years of study and practice of teaching as a science and an art, is of less value, as an evidence of fitness to teach, than a certificate given by a Superintendent

after an examination that lasts perhaps four hours. The omission of the Report to make any mention of this vital part of every public school system, cannot be explained by the fact that the State of Maryland has in successful operation a Normal School, of which the city takes advantage. The State Normal School does not give, and cannot give the *special training* which young teachers of city schools need and ought to have. It is very much better than no training at all. But the city requires a Training School of its own, specially adapted to its own special requirements; and a year's training at such a school, might very properly supplement the Normal School course. In this way a band of experienced teachers would be always in readiness for service. A young woman might graduate at the High School at sixteen, spend two years at the Normal School, and one year at the Training School, and then at nineteen take her place in the schools with more experience to begin with than she could pick up by her own unguided efforts by seven years' practice under the present conditions.

There are other points which we could wish the Report had noticed; among them the lack of any proper *system* of building school-houses; the unventilated condition of nearly all the present buildings; the absence of proper coat-room and yard facilities; the systematic over-crowding of the lower grades; the unwise pressure for promotion. Even if it had been found difficult to devise remedies, the calling of public attention to the disease would have been useful. Let us hope that the suggestions of the Report so far as they are valuable and practicable, may be carried into effect; and that other thinkers may be stimulated to supplement what has been omitted.

SUPERINTENDENT LUCKY, of Pittsburg, in his annual report, makes some excellent suggestions as to the teacher's work. It is his opinion that the use of the daily paper as a text-book in the hands of a teacher cannot be overestimated. He advocates the teaching of spelling in connection with other branches, as a means of interesting the pupil in the orthography and pronunciation of every new word he sees. When studying geography and history, for instance, as in Pittsburg, the pupils are not satisfied with simply learning the name of a country, a river, or a place, but they will carefully look after the spelling and pronunciation of the word. The Pittsburg teachers bear testimony to the great interest which the pupils take in their attempt to master the orthography of all words that they are compelled to use daily at home, at school and on the playground.

MANUAL TRAINING SCHOOLS AT ST. LOUIS.

THE Manual Training School owes its existence to the conviction, on the part of its founders, that the interests of St. Louis demand for young men a system of education which shall fit them for the actual duties of life, in a more direct and positive manner than is done in the ordinary American school.

St. Louis already has large manufacturing as well as commercial interests, and we all expect to see these interests greatly increase. We see in the future an increasing demand for thoroughly trained men to take positions in manufacturing establishments as superintendents, as foremen and as skilled workmen. The youth of to-day are to be the men of the next generation. It is important that we keep their probable life-work in view in providing for their education. Excellent as are our established schools, both public and private, it must be admitted that they still leave something to be desired; they do not, and probably they can not, cover the whole ground.

This conviction of the incompleteness of present means and methods of education has found utterance in many ways. Some of the best friends of education have expressed themselves in strong and suggestive language. All such agree in the conclusion that the main deficiency is in the direction of manual education.

Hence, as has so often been said, nearly all our skilled workmen are imported. Our best machinists, miners, weavers, watch-makers, iron workers, draughtsmen and artisans of every description, come from abroad; and this is not because our native-born workmen are deficient in natural tact or ability, nor because they are, in point of fact, above and beyond such occupations, but because they are without suitable means and opportunities for getting the proper training.

About two years ago the Legislature of the State of New Jersey appointed a commission to investigate and report on the course the State ought to take in the interest of the higher order of manufacturers. In their report of 1878, the com-

mission strongly advocated the establishment of trade schools (*i. e.*, Manual Training Schools), in which should be practically taught the essential principles which underlie the industries. By such a course alone, they argue, can we, as a manufacturing people, hope to compete successfully with the manufacturers of Europe.

There is, doubtless, much to be learned in the organization and administration of a Manual Training School on American soil; but its value to a manufacturing community has been demonstrated beyond question, and its essential features have been clearly determined. It is believed that, to all students, without regard to plans for the future, the value of the training which can be got in shop-work, spending only from four to twelve hours per week, is abundantly sufficient to justify the expense of materials, tools and expert teachers.

It is well understood that many students cannot wisely undertake the full course of intellectual study now laid down for the regular classes of the college or polytechnic school. It occasionally happens that students who have special aptitudes in certain directions, find great difficulty in mastering subjects in other directions. In such cases it is often the best course to yield to natural tastes, and to assist the student in finding his proper sphere of work and study. A decided aptitude for handicraft is not unfrequently coupled with a strong aversion to, and unfitness for, abstract and theoretical investigations. There can be no doubt that, in such cases, more time should be spent in the shop, and less in the lecture and recitation room.

One great object of the school will be to foster a higher appreciation of the value and dignity of intelligent labor, and the worth and respectability of laboring men. A boy who sees nothing in manual labor but mere brute force despises both the labor and laborer. With the acquisition of skill in himself, comes the ability and the willingness to recognize skill in his fellows. When once he appreciates skill in handicraft, he regards the workman with sympathy and respect.

In a Manual Training School, tool-work can never descend into drudgery. The tasks are not long, nor are they unnecessarily repeated. In this school, whatever may be the social standing or importance of the fathers, the sons will go together to the same work, and be tested physically, as well as intellectually, by the same standards. The result in the past has been, and in the future it will continue to be, a truer estimate of laboring and manufacturing people, and a sounder judgment on all social problems. If the Manual Training School should do nothing else, it will still justify all efforts in its behalf if it helps in the solution of the difficulties between labor and capital.

COURSE OF STUDY.

As stated in the ordinance already given, the course of instruction will cover three years, and the school time of the pupils will be about equally divided between mental and manual exercises. Neither intellectual nor physical labor will be carried to the extent of weariness. The change from recitation to the shop, and from shop to study and recitation, will be agreeable and healthful, keeping both mind and body fresh and vigorous.

In mathematics the course of instruction will be thorough, but not extended. Arithmetic, algebra, geometry, and plane trigonometry will be studied in succession. The application of these branches will be made in book-keeping, mechanical drawing, physics, mechanics and surveying. Some attention will be given to physical geography and the principles of chemistry. The English language and literature will be carefully studied throughout the course. Every graduate of the school will have a fair command of the English language, whether in writing or speaking. History, practical ethics and political economy will each find a place on the programme, the treatment of each subject being adapted to the capacity of the class.

Special attention will be paid to drawing during the whole

course. Drawing is the short-hand language of modern science. Careful drawings are to technically-educated people what pictures are to children. They show at a glance what is not in the power of words to express. It is a universal language, and should be read and understood by all.

MANUAL EDUCATION.

Thus far, our course of instruction is familiar; we come now to the manual training proper—to that feature which is to distinguish this school from those around it. How shall we train the hand to keep pace with the eye and the mind, and to fit it well for its future uses? During the last hundred years the world has made rapid strides in the invention and use of tools. We do nothing by the unaided hand; everything is done by tools.

Tool Instruction, then, is what is wanted; instruction in the nature, theory and use of tools. Thus shall we place within reach the key with which to unlock the mysteries of our busy shops and factories.

But which are the tools whose use we are to teach? Before answering this question, it is to be observed that the apparently great variety in tools and mechanical processes arises from different combinations of very simple elements. The number of hand-tools is small; one can easily count them on his fingers. They are the *axe*, the *saw*, the *plane*, the *hammer*, the *square*, the *chisel* and the *file*. The study of a tool involves an examination of its form and the theory of its action, as well as its actual use at the bench or forge. After the hand tools, our pupils must become familiar with the typical machine tools which are chiefly employed in mechanical pursuits.

A knowledge of materials and processes is as important as an acquaintance with tools. Thus the making of patterns precedes the use of castings. The castings themselves are planed, bored, drilled and turned, by the use of special machine tools. Wrought iron and steel are worked at the

forged previously to being used in the machine shop. Tempering, brazing and soldering occupy their appropriate places.

SHOPS, TOOLS AND METHODS.

The *Carpenter Shop* will be furnished with benches and tools for twenty workmen. Each boy will have eight feet of bench-room, a vise, and a set of common carpenter's tools. The shop will contain a grind-stone, two circular saws, a scroll saw, and a planing machine for general use. The students will easily be taught to keep their tools in order. The classes will be given a regular set of exercises, devised to cover all the principles of carpentry and joinery. The exercises in this shop will last about five school months.

The *Pattern Shop* will have sixteen speed lathes of the best design, driven by steam. They will be fitted for all kinds of light wood-turning. There will be, besides the lathes, a set of work-benches, for the bench-work involved in pattern-making. The students will be taught in a series of graded lessons, devised to cover gradually the whole range of wood-turning. The peculiar construction of patterns for castings will be taught and exemplified. The work of a moulder can be fully shown, even if no casting is done. The exercises of this shop will cover about four months.

The *Blacksmith Shop* will be fitted with ten forges, anvils and full sets of tools. A class of ten students will be simultaneously taught the art of drawing, bending, upsetting, welding and punching both iron and steel, and the making and tempering of steel tools. Soldering, brazing, etc., will be included in this course, which will cover about four months.

The *Machine Shop* will contain the steam engine, the motor of all the shops; ten engine lathes of the most approved pattern, suitable for turning, drilling, boring and screw-cutting. One of the lathes will be extra large, for the purpose of doing occasional work. A planer and an upright drill, for general work, will complete the list of large machines. Around the room will be arranged some twelve benches, fitted for twelve boys at bench-work, that is, chipping, filing, etc.

The exercises in this shop, both at the bench and with the machines, will last through an entire school year. They will be numerous and logically graded. The drawing-room and the two recitation-rooms will be on the third floor. All the shops and other rooms are spacious and amply lighted, and care will be taken that they be well warmed and ventilated. The location of the building, on the southwest corner of 18th street and Washington avenue, is one of the best in the city, being high and healthful.

NO ARTICLES MADE FOR SALE.

Throughout the course of shop-work, in addition to the abstract exercises, which are designed to give certain practices and illustrate certain processes, actual tools, or parts of tools needed, either in the shop or in the laboratories of the University, will, from time to time, be made, as the classes become fitted for such practical work. Aside from these, however, the products of the shops are not intended to have any commercial value; in other words, the shops will not manufacture for the market. Whatever may be the advantages of making things which are to be subject to the tests of trade, we think that in this case the objections outweigh them.

In the first place, the management of this school does not propose that its shops shall enter into competition with manufacturing establishments. Proprietors of machine shops and factories need not look upon this institution as a rival.

In the next place, the scope of a single trade is too narrow for educational purposes. Our manual education should be as broad and liberal as our intellectual. A shop which manufactures for the market, and expects a revenue from the sale of its products, is necessarily confined to salable work, and a systematic and progressive series of lessons is impossible. If the object of the shop is education, a student should be allowed to discontinue any task or process the moment he has learned to do it well. If the shop were intended to make money, the students would be kept at work on what they could do best, at the expense of breadth and versatility.

It is claimed that students take more interest in working upon something which, when finished, has intrinsic value, than they do in abstract exercises. This is quite possible, and proper use should be made of this fact; but if all education were limited to such practical examples, our schools would be useless. The idea of a school is that pupils are to be graded and taught in classes, the result aimed at being, not at all the objective product or finished work, but the intellectual and physical growth which comes from the exercise. Of what use is the elaborate solution in Algebra, the minute drawing, or the faithful translation, after it is well done? Do we not erase the one and burn the other, with the clear conviction that the only thing of value was the discipline, and that that is indestructible?

Now, we proceed in manual education on precisely the same plan. We abstract all the mechanical processes and manual arts and typical tools of the trades and occupations of men, arrange a systematic course of instruction in the same, and then incorporate it in our system of education? Thus, without teaching any one trade, we teach the essential mechanical principles of all.

MANUAL TRAINING SCHOOLS COMPARED WITH ORDINARY SHOPS.

Almost without exception the graduates of the school of "*Arts and Trades*," and the "*Apprentice School*," both in the city of Paris, readily find and fill positions as skilled workmen, from which, as soon as they have learned the special requirements of a particular trade or occupation, they rapidly rise to places of trust and responsibility. The ordinary shop-trained workman is not a draughtsman, and has little knowledge of either mathematics or physics, and no skill or finish at either writing or speaking. Only those endowed with remarkable intellectual power rise above the plane of a good mechanic.

Professor Thompson, the principal of the Worcester Free Industrial Institute (a school admirably equipped with shop and tool facilities) says that it is confidently expected that

“the graduates in the department of mechanics will be as skilled mechanics as ordinary apprentices who have served three years in a shop, in addition to the advantages of a solid education.” This expectation seems to be well founded. An examination of the record of 1878 shows that out of the seventy-four men who had graduated in *mechanics* in the first seven classes at that time, nine were employed as journeymen machinists; twenty-three were engaged as superintendents, foremen, draughtsmen or proprietors of manufacturing establishments; five were mechanical or civil engineers; two were farmers; eight were teachers, generally of drawing, and twenty-seven were of miscellaneous or unknown occupations. Hence, at least fifty-three per cent. were either engaged in manual labor, or they had, through their superior training, won positions where they were directing the labor of others.—*Pennsylvania School Journal*.

THE STUDY OF THE CLASSICS.

MR. JOHN BRIGHT recently delivered, at Birmingham, in the presence of five hundred elementary teachers, one of those speeches that have made his name so popular throughout England. He says about classics: “I regard what I call classics—that is, the ancient languages of Greece and Rome—as luxuries rather than anything else. It is a great luxury to know anything good and innocent. It is a great luxury to know a great deal of the past, not that it makes you more powerful to do much, but it is a great pleasure to the person who knows it; but I do not believe myself that there is anything in the way of wisdom which is to be attained in any of the books of the old languages which, at this moment, may not equally be attained in the books of our own literature. Therefore, I think a man may be as great a man, and as wise a man, knowing only his own language and the wisdom that is enshrined in it, as if he knew all the Latin and Greek books that had ever been written.”

THE DEVELOPMENT OF THE TELEPHONE.

ALTHOUGH the telephone seems to have sprung up among us very suddenly, there have been steps in its development which show that the difficulties encountered in devising a means for the transmission of articulate speech have not been overcome altogether by a single stroke of individual genius, but singly, by the patient, and, unrewarded labor of many. Each stage of its development was the outgrowth of suggestions obtained from previous experiments. Of the instruments which served their purpose in the discovery of the properties of the carbon button, a brief description will be given in this paper.

Sound is known to be produced by vibrations, generally of air; differences between sounds are due to differences in vibration. There are but three essential characteristics to be noted, all dependent upon the vibrations of the air: 1. The pitch, by virtue of which the sound is called high or low, and which depends upon the number or rapidity of the vibrations; 2. The intensity or loudness, which is determined by the amplitude of the vibration; 3. The quality by which we distinguish the corresponding tones of different instruments, and which depends on the form of the vibration. In order to obtain an exact reproduction of any sound, its pitch, intensity and quality must be exactly reproduced; and, to render this possible, the rapidity, amplitude and form of the vibration must be exactly reproduced.

For producing sound at a distant place two methods suggest themselves: Actually to transmit the sound vibrations through the air; this is the method employed in the speaking tube. 2. To reproduce the sound vibrations at the distant station; this is the method employed in the telephone. The previous development of the telegraph naturally suggested electricity as the agent to carry the vibrations from one place to another. It thus became necessary to convert sound waves into electric waves, and *vice versa*, and experiments looking to the accomplishment of that end were begun nearly twenty years ago.—E. A. ENGLER, in *Popular Science Monthly* for May.

FIRST LESSONS IN AGRICULTURE.

ARTIFICIAL MANURES.

V.

59. The term *artificial manure* is one of recent adoption and is confined entirely to fertilizers which have been brought into use within the last forty years. Some of these are natural products, as guano and nitrate of soda; others are manufactured, as super-phosphate of lime and sulphate of ammonia. This term is not applied to such manures as lime, chalk, marl, and others of ancient use: these may be conveniently termed *natural* manures. Thus beside the farm manures we shall have two classes, viz., the *artificial* and the *natural* manures.

60. The first step towards the introduction of the artificial manures was the use of *bones*. These were broken so as to pass through a sieve having a mesh of half an inch. They were and still are known as "half-inch bone." The use of these bones upon dairy pastures had a surprising effect, and they were therefore used with great profit. It is easy to understand why such good results followed their use. These lands had been used for feeding cows for many generations. Any herbage consumed by these cows would be robbed of its *phosphoric acid*, because the animal required a supply of phosphate of lime for the formation of milk, and for the growth of the young calf, and very little would be returned to the soil in the excrements. If we examine the composition of milk we find that there is one pound of phosphate of lime in about twenty-five or thirty gallons of milk, and it may be fairly calculated that the annual demand upon the land for each cow is equal to eighty pounds of bone. There was, therefore, a deficiency of phosphate of lime consequent upon this long-continued removal from the soil; and when bone was supplied, lands which had become almost valueless, suddenly became rich and luxuriant.

61. The use of bones was also extended to tillage land, and

with equally satisfactory results. Large demands are made upon the soil for *phosphoric acid* (41) by its continued removal in corn crops, and by sheep and other live stock, and as these had caused a deficiency upon ploughed lands, like that we have already noticed upon the dairy pastures, similar benefits were gained by the application of bones. The use of bone thus became a settled practice, and was found to be highly remunerative.

62. The next step in the use of bone was its reduction to a fine condition, and it was in that form sold as *bone dust*, although it was by no means as fine as dust. The chief difference was the additional labor of grinding it smaller, so as to pass through a finer sieve, but the effect upon the land was marked by its more rapid action.

63. With a view of attaining still greater rapidity of action bones were frequently "*fermented*." This was accomplished by putting half-inch bones into a heap, moistening them with water, and then covering them up with sawdust or fine earth. In a short time these bones became very warm, and when they had been so treated for a few weeks they were found to have become softened, and when used upon the land they quickly broke up and mingled with the soil. Hence they were more quickly ready for supplying phosphate of lime to the plant.

64. It is very desirable that you should be acquainted with the changes that took place in bones so employed, and observe the chemical changes which prepared them for absorption into circulation as plant food. In order that you may fully realize these changes, you must understand that there are at least *three distinct forms of phosphate of lime*, and their composition may be familiarly represented in the following manner :

*Composition of Tri-Calcic
Phosphate.*

Phosphoric acid.
Lime.
Lime.
Lime.

*Composition of Bi-Calcic
Phosphate.*

Phosphoric acid.
Lime.
Lime.
Water.

*Composition of Mono-Calcic
Phosphate.*

Phosphoric acid.
Lime.
Water.
Water.

You will observe the connection between their names and their composition. The *tri-calcic* phosphate, or, as the name

signifies, *three-lime* phosphate, has *three equivalents of lime* combined with one equivalent of phosphoric acid. The *bi-calcic* phosphate, or *two-lime* phosphate, has only *two* equivalents of lime with one equivalent of phosphoric acid, and one equivalent of water takes the place of the one equivalent of lime, in which it is deficient. The *mono-calcic* phosphate, or *one-lime* phosphate, has only *one* equivalent of lime combined with one equivalent of phosphoric acid, but it has two equivalents of water to make up the deficiency of lime.

65. You will also carefully note that in each case we have *three equivalents of base* combined with the one equivalent of phosphoric acid. In one case lime is the only base, in the two others they consist of lime and water, but in each case there are three equivalents of base. Hence, phosphate of lime is frequently spoken of as a *tri-basic phosphate*, or a *three-base phosphate*.

66. We are now in a position to follow out our explanation of the changes which take place in bones after they have been applied to the soil. The phosphate of lime present in *bones* is the *tri-calcic phosphate*. When the bones are acted upon in the soil by rain-water, which, as you know, contains carbonic acid—or when acted upon by the carbonic acid produced in the soil—in each case we get one equivalent of the lime removed by the carbonic acid, and the tri-calcic phosphate acted upon then *becomes bi-calcic phosphate and carbonate of lime*. The bi-calcic phosphate dissolves gradually in water, and is thus taken up into the circulation of plants in a soluble form. The following diagram shows the action of the carbonic acid upon the tri-calcic phosphate in bone:

Composition of Tri-Calcic Phosphate.	Re-agents Employed.	Products of Decomposition.
Phosphoric acid.	} Water.	Bi-calcic phosphate.
Lime.		
Lime.		
Lime.		
	Carbonic acid	Carbonate of lime.

67. Up to 1840 phosphate of lime was added to the soil by the use of bones, having varying degrees of fineness; but, in that year, Liebig proposed a *chemical treatment of bones*, where-

by they were rendered more rapidly soluble, and consequently were ready for use for the crop with less loss of time. In fact, instead of the farmer having to wait some months for any general action of the bone, this chemical treatment made the bone ready for immediate use. Liebig's discovery of the means whereby these results could be attained with such promptitude, was—like many other great discoveries—exceedingly simple. He imitated the natural decomposition of bone as it takes place in the soil, but he accomplished the work more quickly by using a stronger acid. We have seen (66) that the carbonic acid *slowly and quietly* took from the tri-calcic phosphate some of its lime, and thus increased the solubility of the bone, but Liebig used sulphuric acid, which is a very powerful acid, and this accomplished in one hour more than the carbonic acid could do in one year. The chemical change was practically *completed at once*, and the phosphate of lime in the bone became *immediately* soluble in water.

68. But Liebig's process did something more than gain time—he obtained the tri-calcic phosphate of the bone in a thoroughly soluble condition, and in this respect *the chemical change he accomplished went beyond that which naturally occurred* in the soil. The difference will be more clearly understood by reference to the following diagrams :

<i>Composition of Tri-calcic Phosphate.</i>	<i>Re-agent Employed.</i>	<i>Products of Decomposition.</i>
Phosphoric acid. }	Water. }	Mono-calcic phosphate.
Lime. }	Water. }	
Lime. }	Sulphuric acid.	Sulphate of lime.
Lime. }		

69. If you compare this diagram with that immediately preceding it, you will see that *a different form of phosphate of lime is obtained* from that which had been produced in the soil *by the slow decomposition* of the bone. In the former case a bi-calcic phosphate was produced, and this is a *slowly soluble* phosphate of lime. In the latter case we have mono-calcic phosphate produced, and this is *rapidly soluble* in water.

70. The treatment of bone by means of sulphuric acid thus

introduced by Liebig therefore produced a new kind of manure which has been distinguished as *super-phosphate of lime*. It was called *super-phosphate of lime*, because the phosphoric acid which had been combined with three equivalents of lime *had been concentrated* upon one equivalent of lime, and the lime was thus *super-phosphated*, or, in other words, the lime was *over-charged* with phosphoric acid. It must be remembered that "super-phosphate of lime" is really a mixture, of which the active ingredient—mono-calcic phosphate—forms sometimes not more than one-fourth of the entire weight.

ACTIVE NONSENSE.

PERHAPS there is nothing better calculated to impress us with respect for the power of the human mind than to glance for a moment at some of the grammars now in use in our school rooms. For how any child can work over them and finally emerge from the school room with any clearness at all in his head, it is almost impossible to imagine. There must be a preservative power inherent in the mind which mercifully holds it back from paying attention to the meaning of the sentences learned, as is proved by the fact that there undoubtedly are quite a respectable number of men and women who have survived the ordeal of study of such books. Our geographies endeavor to stuff their minds with utterly useless and disconnected facts, good only to lumber up the mental processes. Our readers, most of them, fill the mind with poor English and badly constructed stories of poems. All this is bad enough. But when we come to the grammars we seem to have machines deliberately constructed with special intent to hopelessly entangle the mental processes, and leave the child in a state of confusion bordering on insanity.

Let us be thankful that for children with such text books and under some teachers there remains the power of inattention which is their only safeguard.

In English grammar, where the effort is to create something out of nothing, and to force the child to "make believe" and see distinctions which do not exist, we expect to find nonsense, and we are not disappointed.

But when we come to Latin, a language which has a complicated grammatical structure, and one which has been made the object of study for hundreds of years, we might expect the distinctions to be clearly drawn and the classifications to have some show of logic.

But what we do find in many Latin grammars now in use as elementary text books is an entanglement from which every wise teacher will carefully turn away the eyes of her pupils. "Cross that page out," she will say on assigning the next lesson. "Don't one of you dare even to read it over! It is nonsense. Don't look at it."

The subject is the classes of verbs. Can anything be simpler than the truth? There are only two *kinds* of verbs, and those are transitive and intransitive. The transitive verb requires an object, the intransitive verb none. In more philosophical phrase, the action of the intransitive verb is contained within itself, that of the transitive is not. If we attempt to give an object to an intransitive verb, we can either give it only the noun expressing the state corresponding to the verb itself, or repeat the subject under the form of the compound personal pronoun.

The transitive verb, dealing as it does with two entities, the action passing over from one to another, we are at liberty to look at the action from the point of view of either of them, to view the action from its starting limit or from its receptive limit, and hence we may have two expressions for the same fact. We have for transitive verbs an active and a passive voice. From the very nature of the intransitive verb, it can have no distinction of voice as it makes not the slightest difference from which end we regard the action that has its end within itself. That is all there is of it. Two classes of verbs and to one of them two forms of voices.

But now for the grammar: "Verbs may be divided into four classes: active, passive, neuter and deponent."

We might as well begin a treatise on ethnography with the somewhat startling sentence:

"Men may be divided into four classes: "Tall, short, hungry, and rich."

But our author, and I am quoting word for word from an author in very common use, an LL.D. at that, goes on:

"Active verbs express *action*, and are divided into transitive and intransitive."

To carry out the simile, we might also go on:

"Tall men are those above the medium height and are divided into *good* and *bad*."

To return to our LL. D.: "Passive verbs express *passion*." Now to a child's mind what idea is given by the word "passion" except anger? When a word has entirely lost its original meaning we submit that the attempt should be given over to try and force that original meaning upon it. There are plenty of patient Jobs in the original sense, but never a patient Job in the only modern sense. Such literary affectations ought to be banished from elementary text books. But the author goes on to explain the term in a parenthesis. "Passion (that is the receiving or *suffering* of an action) as *laudor*, 'I am praised.'"

Now when the boy of ten years is told that the *suffering* of an action is illustrated by the expression. "*I am praised*," what idea, in the name of common sense, can he be expected to derive from it? If he be a sensible boy he shuts his book with disgust.

But let us go on: "Neuter verbs express *neither* action nor passion but simply being or a state of being, as *dormio* 'I sleep.'" A remark immediately below says that "Neuter verbs are few in number and are often classed under intransitives."

That is, one of our four primary classes—which must be logically supposed to be the most clearly distinguished from each other—is often put as a sub-class of one of the other

primary classes ! It is as if we should say, "Hungry men are few in number and are often classed under tall men."

We go on : "Deponent verbs have the passive form but an active meaning." That is, in our ethnography, rich men are those that look as if they were tall, but they are really short."

I know that men are not verbs, but I submit that the confusion in the case of the ethnographical lesson would be no greater than would exist in the pupil's mind after really endeavoring to master the above classification of verbs.

If we could only have our text books thoroughly revised by some practical and common-sense teacher who would give us the simple common sense of the thing, whatever it is, and plenty of exercises and examples, so that the truth, pure and simple, would gradually shine into the mind of the pupil without so much verbiage—and more than all, if we could only find the teachers who are real genuine teachers, not talkers or lecturers or hearers of lessons, what a joyful time the children would have and how delighted the public would be ! The colleges are not fitting them for us. Are the normal schools making them ready ? The fields are white but where are the reapers ?—ANNA C. BRACKETT, in the *American Journal of Education*.

A VERY large share of the solid intellectual work of Germany is done by the University professors. In almost every department in which serious and persistent labor is demanded they stand in the front rank.

SWEDEN has now about 9,000 primary schools, and expends each year for school purposes nearly \$2,250,000. There are 9,000 teachers to whom is paid out of the above sum every year \$1,300,000. The schools instruct about 700,000 pupils, and are maintained eight months of the year. The teachers are prepared by eleven Normal Schools.

FIRST LESSONS IN BOTANY.

BY G. L. SMITH.

XVIII. DOGTOOTH VIOLET.

Teacher.—Among the first flowers that you will find in the spring, is the *Dogtooth Violet*. It generally grows near streams in open woods or fields, and you will probably notice the leaves before you do the flowers. See how beautiful they are.

Pupil.—Do they grow on high stems?

T.—No! the stem is subterranean, and you will see nothing but the leaves and flowers above ground. Here is one that I dug up, Figure 14— $\frac{1}{2}$ size. See how long it is. What is this at the lower end?

P.—It must be a rhizome.

T.—I will cut it in two and see how it compares with this rhizome of the Blood-root.

P.—It is in layers like an onion, but the rhizome of the Blood-root is all in one piece.

T.—This is a very good way to distinguish a *bulb*. A section will show that it

consists of layers with a bud in the centre. Plants which start from bulbs deep down in the ground are generally perennials, as this is. How many leaves are there?

P.—There are two leaves and one is larger than the other.

T.—Is the upper or lower leaf larger?

P.—The outside, and I suppose you would call it the lower leaf, is larger.



Figure 14.

T.—Describe the leaves.

P.—They are parallel-veined, broadly lanceolate and mottled with brown blotches on the upper side.

T.—Notice also that the points are involute (*i.e. rolled inward*) and that the two are of about the same length, although the lower one is much broader than the upper. Describe the scape.

P.—The scape is cylindrical, smooth and of a yellowish color. It bears but one flower.

T.—Is the flower complete?

P.—These yellow parts must be sepals because there is but one row, and they are all alike.

T.—Are you sure that they are all alike? Pull them off separately and see if they are.

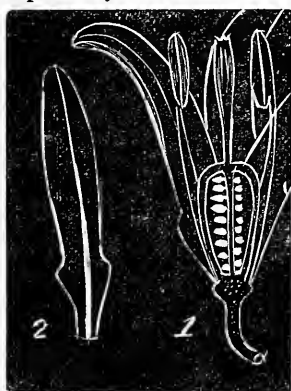


Figure 15.

P.—Three of them are darker on the outside than the other three and the lighter ones have little projections on each side of the claw. Fig. 15. (2).

T.—The floral envelope which we called the *perianth*, sometime ago, is more particularly called the *perianth* in such a case as this, when the parts are all very much alike in color and shape. They are really arranged in two rows, and the three outer ones are taken as the sepals, while the inner ones are petals.

The projections on the sides of the petals are called *teeth*, and these petals are *bidentate* because each has two teeth. What is the form of the whole perianth?

P.—The petals and sepals are separate to the receptacle and bend back forming a bell shaped perianth.

T.—How many stamens are there, and how are they arranged?

P.—There are six stamens, one opposite to each segment of

the perianth, and attached to it at the base of the claw. The anthers are turned in towards the pistil.

T.—The stamens are hypogynous, Fig. 15 (1), and anthers which turn in towards the pistil, like these, are *introse*. What is the shape of the pistil?

P.—It has a large three celled ovary and a club-shaped style.

T.—Is the ovary attached to the calyx, or free from it?

P.—It is free from it and above it.

T.—An ovary which is above the other parts and is not attached to the calyx is called a *superior* ovary, and one that is below, or even attached to the calyx, is *inferior*. Now notice that there are *three sepals*, *three petals*, *six stamens* and a *three divided ovary*, so that the number of parts in each row is *three* or a multiple of three, and in such a case, the flower is said to be on the *plan of three*. Heretofore, the flowers that we have examined have been on the plan of *four* or *five*; but how have the leaves of those plants differed from these?

P.—The leaves of most of the flowers we have analyzed before this, have been net-veined, while this is parallel-veined.

T.—When we were studying the seeds of the bean and corn plants, we found that the bean, which had net-veined leaves, had also dicotyledonous seeds, and the corn, which had parallel-veined leaves, had monocotyledonous seeds. Now let us add this new generalization, and give names to each. The first grand division of plants is called *EXOGENS*; they have *net veined* leaves, *dicotyledonous* seeds, and flowers generally in *fours* or *fives*. The second division is called *ENDOGENS*, and have *parallel-veined* leaves, *monocotyledonous* seeds, and flowers in *threes*. These characteristics of the two larger divisions of flowering plants (called *Provinces*) are very well marked, and have but few exceptions. So that, if we see a plant with parallel-veined leaves, we at once infer that it bears flowers in threes and monocotyledonous seeds, while, on the other hand, if the flower is on the plan of four or five, we

look for net-veined leaves and dicotyledonous seeds. This little plant is often called the Dog-tooth Violet, but it is very different from a violet, and should not bear that name. It belongs to the lily family, and since some of the members of the same genus are red, the name of the genus is *Erythronium*, derived from the Greek word meaning red. The name of this species is *Americanum*, and the common names are Yellow Erythronium, Adders Tongue and Dog-tooth Violet.

ANALYSIS.

Plant.—A smooth, fleshy herb, found in moist places.

Root.—Fibrous, from a bulb deep in the ground.

Stem.—Subterranean, white, fleshy, juicy.

Leaves.—Two, parallel-veined, elliptic-lanceolate, nearly opposite, upper sides mottled with brown, outer a little larger than the inner, petiole of larger clasps that of smaller, both involute at point.

Peduncle.—A white cylindrical scape, nearly as long as the leaves, one flowered.

Flower.—Solitary, drooping, bell-shaped, three-parted, odorless, perianth six-divided.

Calyx.—Outer row of the perianth, *sepals* three, yellow or orange on inside and purplish on outside, recurved, brown or purple spots on inside near claws.

Corolla.—The inner row of the perianth, *petals* three, lanceolate, yellow on both sides, with brown spots as in sepals, bidentate, recurved, alternate with sepals.

Stamens.—Six, one attached to the claw of each petal and sepal, filaments yellowish, flattened at base, anthers oblong, two-celled, introse.

Pistil.—Compound, *stigma*, three divided, style one, club-shaped, *ovary* three-celled, many ovuled, *seeds* numerous with curved points.

EDITORIAL.

THE Legislature adjourned without making any change in the school law. There was a strong desire on the part of many members to remove the power of appointing the School Commissioners from the judges of the Circuit Courts, and a bill to that effect, conferring that power on the Governor was passed by the Senate, but failed to make progress in the House. Had it been brought up, it would most likely have been rejected.

The committee of nine appointed on motion of Mr. Vandiver, of Harford, to investigate the State Normal School, made a favorable report, which was signed by eight members, including Mr. Vandiver, the chairman. The report was not submitted, however, until the last night of the session, after the Normal School question had been long and hotly contested and finally settled by reducing the appropriation to \$8,000. The former appropriation of \$10,500, eked out by tuition fees, was barely sufficient to run the school, but as the effect of the reduction, while crippling the Normal School, is to add fifty cents to the income of each public school in the State, we presume the advocates of economy have been satisfied.

MILWAUKEE will establish this spring a free kindergarten upon the plan of the St. Louis kindergarten. It will be under the supervision of Miss S. A. Stewart, principal of the Normal Department, and will be considered a branch of that department. The San Francisco Board of Education has appointed a committee to investigate the whole system of kindergarten instruction, and to consider the advisability of adopting it in connection with the public school system of California. This action is apparently the result of a recent vigorous discussion, in the San Francisco newspapers and schools, of the Quincy methods.

DR J. A. H. MURRAY, President of the Philological Society, writing to a member of the English Spelling Reform Association, says: "As to practical measures, I strongly approve of gradual steps. If spelling reformers will agree on a list of immediate changes, and pledge themselves to use them *whenever they can*, I will join them in doing so. If some hundreds of men will do this, it cannot be laughed down. I would have a list drawn up of words on which there would be a general agreement, excluding for the present *all* doubtful words, but including all those like *hav, giv, catalog, tung, det, dont, coud, soverin, lovd, prest, deckt*, whose superfluous letters are both *unphonetic* and *unhistoric*, in order to make a beginning, and in fact to make the matter a practical one, so that people would be forced to say, "Some people spell this word so and so: I think theirs is a better way."

THE University Normal School, to be held at Charlottesville, Va., during July and August promises to be a great success. Over five hundred members were enrolled before the first of May. The principal instructors of the school will be Dr. M. A. Newell, of Maryland, and Rev. W. B. McGilvray, of Richmond.

DURING the month of April a short course of lectures on Kindergarten was delivered at the State Normal School, Baltimore, by Miss Elizabeth Peabody, of Boston. Miss Peabody is an enthusiast on the subject of kindergartens, and devotes herself entirely to the good work. The lectures were largely attended, and probably some seed was sown in good ground.

DAVID A. HOLLINGSHEAD, A. M., principal of the Western Female High School, Baltimore, died at his residence, No. 202 North Carrollton avenue, at 9 o'clock Saturday night, April 24, of pneumonia, after a sickness of seven weeks, in the sixty-third year of his age. Prof. Hollingshead was born in Baltimore County, near the Pennsylvania line, on March 8, 1817. His parents, who were of Scotch descent, came to this country from Ireland in 1798. Until he was 16 years of age he worked on the farm, attending school in winter. About 1827 he moved to Hopewell Township, York county, Pa., where he was taught English grammar by Samuel Kirkwood, afterwards Governor of Iowa and United States Senator. After a period of five years he was transferred to the Central Male High School, now Baltimore City College. He served there acceptably for three years as assistant to Dr. Waters, the principal, teaching mathematics. Upon the resignation of Mr. Kerr he was elected principal of the Western Female High School. His ability to fill this position in all its requirements is attested by the twenty-four years which he held it, and by the willing testimony of hundreds of noble women who graduated under his guidance and fostering care. Professor Hollingshead has been thoroughly identified with the cause of public education in Baltimore for more than a quarter of a century. His autobiography would be, to a great extent, the history of the Western Female School, an institution which attained its present conspicuous position under his management, and was for a long time the Mecca of educational pilgrims from every part of the country. For Baltimore was the first city in the country to establish a High School, exclusively for girls. The new building erected for the Western High School, was at that time unsurpassed for beauty, extent, and convenience; the discipline of the school was so admirable as to be obvious even to casual visitors; and strangers who had the privilege of hearing the reading and the singing of the pupils, went away deeply impressed. This success Prof. Hollingshead not only shared, but to a large extent created. He entered on his work with enthusiasm, and his

zeal never flagged. His work rather consumed than occupied him. He gave to it all his time, all his energies and all his heart. His death brought sorrow to thousands of families whose daughters had, by his labors, become "as corner-stones polished after the similitude of a palace."

WE regret to have to record the death of Mr. George W. M. Cooper, Secretary, Treasurer and Examiner of the School Board of Wicomico. Mr. Cooper had been for a long time in feeble health, but his death was sudden and unexpected. His loss will be deeply felt in the educational work of the county and indeed throughout the State. Of a modest and diffident disposition, always keeping his own personalities in the background, yet he managed public school business with great success. He was instant "in season and out of season;" knew every teacher and the wants of every district in the county, and devoted himself entirely and heartily to his work. He will be missed not only by his personal friends of whom no man in a like position had more, but by every teacher and every pupil in Wicomico County.

BOOK NOTICES.

WE have received from the publishers, DAVIS, BARDEEN & Co., Syracuse, N. Y., *A Thousand Regents' Questions* in Arithmetic, to which we desire to call the attention of all teachers who are not unwilling to leave the track of the text-book, and test the thinking powers of their pupils. The questions are printed separately, one on every slip of card-board, and can be easily selected and arranged for class use. They are of four grades: Fundamental Operations; Fractions; Compound Numbers; Percentage, Proportion and Evolution. For drill, preparatory to an examination, we know of nothing better or handier than these cards. A key with answers is in the same box.

AMONG the valuable "Manuals for Teachers," published by J. W. GAGE & Co., Toronto, Canada, will be found *How to Secure and Retain Attention*, by James L. Hughes, Inspector of Public Schools. The only objectionable page in it is the title. It is not so much an essay on the means of securing the attention, as on the things that require the attention of teachers. It is a manual of maxims, brief, pointed and comprehensive, accompanied by a commentary, which is always clear and never tedious or dull. Young teachers should study it; old teachers should read it; and all should practice what it prescribes.

It is not every one that has a Dictionary "Unabridged;" and of those who have dictionaries, it is not every one that knows how to use them. "Webster" or "Worcester" is a mine of knowledge, but the treasures are yielded only to those who have the skill and patience to work the mine. It is to supply such skill, in part at least, that the *System of Dictionary Work* (MAXWELL & Co., Bloomington, Illinois, publishers,) has been written by the authors, Thomas Metcalf and Charles de Garmo. We cordially commend it to the profession, and to all who need instruction in the use of the Dictionary.

A VALUABLE addition to our limited stock of really first class school books for first class schools will be found in two volumes, published by HOUGHTON, OSGOOD & Co., *American Poems*, and *American Prose*. It is most devoutly to be wished that books like these may make their way into our higher classes in place of the fragmentary "Readers" and elementary "Selections," which have been so much in vogue. The "Poems" are by Longfellow, Whittier, Bryant, Holmes, Lowell and Emerson. Instead of the customary fragments we have nearly two hundred pages from Longfellow, one hundred from Whittier, and from the others in like proportion. We have a brief biographical sketch of each of the authors named, and a historical introduction to such of the poems as need it. The "Prose" is by Hawthorne, Holmes, Emerson, Lowell, Whittier, Thoreau and Longfellow, each selection preceded by an introduction. No better beginning of an acquaintance with American literature could be made than a careful reading and study of these volumes will give.

MESSRS. GINN AND HEATH are never weary in well-doing in their line of business, which is the publication of good books. One of the best services which they have rendered to the world of learners and teachers for whom they cater, was the publication of *Whitney's Essentials of English Grammar*. But as that book was, of necessity, not adapted to very young beginners, they have supplied the want—or what they presumed was a want—by "*Elementary Lessons in English*." Now we have grave doubts about all such books. Baby school-books, whether in Natural Science, exact Science, or in Literature, are among the things we suspect. Before they can be received into favor, they must prove themselves "Not Guilty." We are not quite sure that these "Elementary Lessons" have altogether established their innocence, but we can confidently recommend them to all teachers who are in need, or think they are in need, of books of that description. We would only remark in passing, that if teachers could catch the spirit of the book without binding themselves to the letter, they and their pupils would be greatly benefited. But the spirit of the very best methods often evaporates under the drying influence of printers' ink.

PUBLISHER'S DEPARTMENT.

WE invite correspondence from all our readers. There is probably not another School Journal in the country that receives as few contributions from its readers as does ours. What we say to one we say to all: try your hand at writing, and let us judge of the worth of the article. If it is good we will print it. The pages of the JOURNAL are open for discussions on all educational topics. Suggestions, queries and articles for publication will receive prompt attention.

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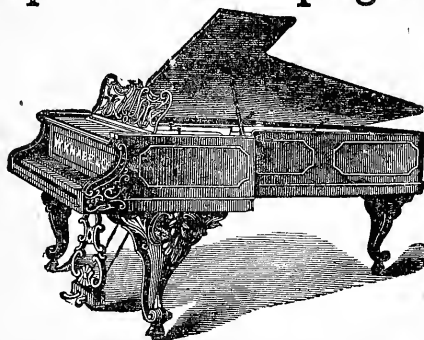
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THE
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DEVOTED TO THE CAUSE OF EDUCATION.

Vol. VI.

JUNE, 1880.

No. 10.

THE FOUR R'S.

[From the Salutatory delivered by J. Edward Harry, at the Commencement of the State Normal School, May 27th.]

YOU are all aware that this is a school supported by the State for a special purpose—the training of young men and women as teachers of the common schools.

The Normal School is thus clearly and sharply marked off from the High School, the Academy and the College. The purpose of these last is to give a better or higher education than the common school usually affords—instruction in different subjects from those taught in the common schools, or in the same subjects carried to a more advanced stage. The purpose of the Normal School, on the contrary, is not to give what is called a higher education; its primary object is *not culture*, but *usefulness*. It is simply to prepare those who have already obtained a good elementary education, to impart the same to others, and to train them to those special habits and exercises which distinguish teaching as a profession, from teaching as an accident. It is to draw as sharp a line of distinction between the permanent and the itinerant teacher, as there is between the respectable lawyer and the lawyer of the curbstone, or between the regular physician and the vender of quack medicines. The law requires, and courtesy assumes, that all who enter this Normal School are, *at the time of their admission*, reasonably well versed in all the elementary branches which

they are required to teach. These branches are definitely stated in the school law; but public opinion has not accepted the legal definition with entire unanimity. There seems to be a growing opinion that the schools teach, not too *much*, but too *many* things; and we sometimes hear the three R's spoken of as embracing—if not the sum of saving knowledge—at least all that is necessary to be taught in the common schools. Nobody asks for *less* than this, and if they would only consent to add a fourth R, their position would be a very strong one; for there are very few branches of intellectual education that cannot be comprehended under reading, writing and arithmetic. For, what do we mean when we say a man can read? We do not mean merely that he can name the words on a printed page. We mean that when he sees these words they bring before his mind the thoughts which they were intended to represent.

If reading is a branch of education, it must include more than the mechanical pronunciation of words; machines have been constructed which could do all that; the daughters of the great blind poet read Latin to their father in that fashion, and were not in the least benefited by it.

The reading which is worth being taught must insure to the reader a right perception of the thoughts of which the words are the symbols.

Anything less than this is shadow without substance. But the proper comprehension of the meaning of an author, involves some knowledge of the structure of language, that is to say, of grammar, and also some acquaintance with the subject matter of which the author treats, which may be history, geography, or philosophy. Thus, we see, reading cannot be properly taught without at the same time teaching grammar and some branch of literature or science.

In like manner, writing means more than making marks in a blank book, like those in the copy. To learn to write, if it means anything worthy the labor of a rational being, means to acquire the power to express one's thoughts by visible characters, and that involves a knowledge of spelling, grammar and

composition; and as drawing is only another method of expressing a certain kind of ideas by means of visible forms, it may also be included under the general term of writing.

The third R, arithmetic, or the art of counting, must be held to include not simply a knowledge of the ordinary arithmetical processes, but also the reasons and principles on which those processes are founded, and these cannot be understood without some knowledge of algebra and geometry. Thus, the learning of the three R's, in a rational way, includes a knowledge of almost all the subjects that have ever been considered as properly belonging to the common school course. But even in this enlarged sense, the three R's would be found to be insufficient. There is no necessary connection between knowledge and virtue. A good reader may be a bad citizen; a good arithmetician may cheat his creditors; a good penman may commit forgery. Reading, writing and arithmetic, even when expanded into grammar, geography and history, algebra and geometry, book-keeping and philosophy, will be entirely insufficient, unless they are strengthened and sanctified by the fourth R, religion. Here, we are treading on doubtful and dangerous ground. The public school of America cannot teach religion in the sense of teaching any formula of theological doctrine, but, nevertheless, the American school cannot reach its highest standard of usefulness until both teachers and pupils recognize in their daily work the existence of one first, great cause, and one ever present superintendent power, in whom we live, and move, and have our being, and to whom we are accountable for all our actions.

The school law of Maryland makes partial recognition of this truth, for it mentions among other things which must be taught in every public school in the State, "good behavior;" and there can be no good behavior without a constant reference to the great source and pattern of goodness—God.

It may be difficult, but we hope it is not impossible, to cultivate literature, without pedantry; history without party politics; philosophy without *isms*, and religion without dogmas. At all events our teachers are making the attempt.

QUESTIONS GIVEN TO CANDIDATES FOR POSI-
TIONS IN THE PUBLIC SCHOOLS OF BAL-
TIMORE CITY, MAY 8TH, 1880.

PARSING AND GRAMMAR.

[Parse words in italics.]

But let my due feet never fail
To tread the studious cloisters pale,
And love the high embowed roof,
With antic pillars massy *proof*,
And storied windows richly *dight*,
Casting a dim religious light

* * * * *

And may at last my weary age
Find out the peaceful hermitage,
The hairy gown and mossy *cell*,
Where I may sit and rightly *spell*
Of every star that heaven doth shew,
And every herb that sips the dew,
Till old experience *do attain*,
To something like prophetic strain.

1st. What is the proper rule for writing the possessive of complex proper nouns? Illustrate by examples. 2d. Correct the errors in the following sentences, giving the rule for each correction: I was very delighted with my visit. "It is Othello's pleasure, our most valiant general." Neither frailty or folly are coincident with wisdom. 3d. Explain the distinction between the Indicative and Subjunctive Moods. Why is the Subjunctive used in this sentence: "Beware, lest temptation overcome thee." 4th. Point out the ambiguity in the following sentence, and rewrite the sentence, so as to remove the ambiguity: I hold it not less certain, that as the numbers and population of the new States increase, and with them the value of the public lands, and the political importance of these States,

we must become year by year less competent to their management, till finally we shall become wholly so.

The three last questions are required only of Principals and First Assistants in Grammar Schools.

5th. Point out some of the essential differences between Victorian and Elizabethan English. 6th. What traces of inflection still remain in English? 7th. Why is the improper use of relatives especially liable to produce ambiguity?

ETYMOLOGY.

Give the etymology of *coincidence*, tracing out every part of the word, root, prefixes, suffixes. Derive *inauspicious*, accounting carefully for the syllable *au*. How many words may be formed from the root *reg*. Trace the word *incorrigible* from this root. Give the derivation of *eleven*, *thirty* and *twenty*. Are any of the numerals, cardinal or ordinal, up to 100, derived from any other language than Anglo-Saxon?

HISTORY.

1st. When was the Federal Constitution formed, and which were the last States to adopt it? 2d. Which two illustrious Americans were both Presidents and Vice-Presidents of the United States, and both died on the same day, and in the same year? What is the date of their death? 3d. Give some account of the voyages of Columbus, and his discoveries on the Western Continent? 4th. What especial privileges were conferred upon Lord Baltimore, by the charter granted by the English Government? 5th. Name two eminent foreigners in addition to LaFayette, who participated in the American Revolution; what service did they render the American cause? 6th. What period is embraced by Jackson's administration? Who were Vice-Presidents during his administration?

The three last questions are required only of Principals and First Assistants in Grammar Schools.

6th. When was the doctrine of rotation in office developed in American politics? Give a brief account of its origin and

its effects. 8th. How were the Nullification questions in South Carolina disposed of? When were those questions agitated, and what grave constitutional issues were involved in them? 9th. What defects in the Articles of Confederation led to the formation of the Federal Constitution? How did the weakness of the Confederation reveal itself during the revolution, and after the revolution?

GEOGRAPHY.

1st. On what waters would you sail in going from Baltimore to Cairo? 2d. What States include parts of the Andes? 3d. Draw an outline map of Europe, and locate the principal political divisions, and some of the most important cities. 4th. Give an account of the position, area, physical features, soil, climate and productions of Maryland. 5th. Describe the origin of icebergs, and give a reason why they are not found in the North Pacific Ocean. 6th. Locate—London, Algeria, Rome, Berlin, Lake Victoria Nyanza, Liverpool, Chicago, Madagascar.

ADDITIONAL QUESTIONS.—To be answered by Principals and First Assistants in Grammar Schools.

7th. To what government do the following islands belong: Iceland, Majorca, Malta, the Bahamas, Cuba, St. Helena, Vancouver, Madeira? 8th. State the analogies in the general form of the two great continents, and compare their mountain and river systems. 9th. What advantages are derived from ocean currents?

MUSIC.

1st. Why is the scale of C called the model scale? 2d. Why are sharps and flats used? 3d. What is the value of a dotted half-note? 4th. Define the terms bass, fugue, alto and soprano. 5th. How many major and minor scales are there in music? 6th. What is meant by accidentals?

NATURAL PHILOSOPHY.

1st. Define reflection, refraction, polarization. 2d. What is spectrum analysis? Tell something of the revelations made

by the spectroscope. 3d. Define specific gravity, and show how it is found. 4th. Explain the construction and the uses of the barometer. 5th. What are the sources of heat? How may heat be converted into motion? 6th. Define capillary attraction, and give an example.

GRAMMAR SCHOOL ARITHMETIC.

1st. Mr. Bowman laid out \$779 in groceries, $\frac{1}{3}$ of the whole quantity being sugar, at \$0.16 a pound, $\frac{1}{6}$ being tea at \$0.95 a pound, $\frac{2}{7}$ being coffee at \$0.35 a pound, and the remainder being starch at \$0.13 a pound to the amount of \$19.50; how many pounds of each did he buy?

2d. A vessel sailed from Philadelphia (Lon. $75^{\circ} 9' 5''$ W) and after being out 30 days, the captain took an observation and found the solar time to be 2 h. 16 min. 24 sec. P.M., the chronometer at the same time marking 11 h. 36 min. 40 sec. A.M.; required the longitude of the vessel, supposing the chronometer to have lost $4\frac{1}{5}$ sec. per day.

3d. A broker sold 315 bales of cotton, averaging 395 lbs. to the bale, at $16\frac{1}{4}$ cts.—his commission being $2\frac{3}{4}$ per cent. and the charges \$179. He invested 25 per cent. of the net proceeds in flour for consignor, charging a commission of $1\frac{1}{4}$ per cent. How much was still due the consignor?

4th. A man wishing to construct a tank in his attic, found that it would not be safe to place there a weight of more than 4,500 lbs. of water; what length can he make the tank with a width of 4 feet and a depth of 3 feet, water weighing 1,000 ounces a cubic foot?

5th. The first couplet of a compound proportion is made up of the ratios 5:15 and 4:16, and the first ratio of the second couplet is 4:12; what is the second ratio if the antecedent is 11?

6th. A merchant sold cloth at 20 per cent. gain, but had it cost \$49 more, he would have lost 15 per cent. by selling at the same price; what did the goods cost?

ALGEBRA.

1st. Extract the cube root of,

$$27x^6 - 54x^5 + 63x^4 - 44x^3 + 21x^2 - 6x + 1.$$

2d. Solve the equation:

$$\sqrt{x-5} + \sqrt{x+7} = 6.$$

4d. A company at a tavern had 1 dollar and 75 cents to pay; but before the bill was paid two of them left, when those who remained had each 10 cents more to pay; how many were in the company at first?

4th. Solve the equations:

$$3x + 5y = \frac{(8b - 2f)bf}{b^2 - f^2}$$

$$y - x = \frac{-2bf^3}{b^2 - f^2}$$

5th. A crew which can pull at the rate of twelve miles an hour down the stream, finds that it takes twice as long to come up a river as to go down. At what rate does the stream flow?

6th. A cistern can be filled by two pipes running together in 2 hours 55 minutes. The larger pipe by itself will fill it sooner than the smaller by 2 hours. What time will each pipe take separately to fill it?

EVERY day is a little life: and our whole life is but a day repeated; whence it is that Jacob numbers his life by days; and Moses desires to be taught this point of holy arithmetic, to number not his years but his days. Those, therefore, that dare lose a day, are dangerously prodigal; those that dare misspend it desperate.—*Bishop Hall.*

REPORT OF THE COMMITTEE TO INVESTIGATE
THE MANAGEMENT OF THE STATE
NORMAL SCHOOL.

[By the House of Delegates, April 5th, 1880. Read and ordered to be printed.]

To the Honorable, the Speaker and Members of the House of Delegates :

Your committee, appointed under a special order of this House, to investigate the management of the State Normal School, respectfully beg leave to report—

That your committee, in pursuance of said order, have visited said school, and, as far as possible, made a careful examination of the same, both as to the methods and degree of instruction, and the application of the receipts of said institution from all sources.

The subjects taught in said institution are very properly confined to such branches of education as are required to be taught in the public schools of the State. The manner and methods of teaching seem efficient.

The chief aim and purpose of the school, as was evidently intended by the State in its creation, is to supply the public schools of the State with a corps of trained and efficient teachers, and in the judgment of your committee, from a personal examination of the school, and from information derived from other and reliable sources, it is successfully accomplishing this very desirable object; in evidence of which the number of students enrolled since January, 1866, is 1,396, being an average of $99\frac{5}{7}$ pupils per annum, including the years of the school's infancy, when the attendance would naturally be small.

Of this number, 566 have taught in the public schools of Maryland, and about 354 are at present so engaged in Baltimore city and the various counties of the State. The number of students at present upon the roll of the normal department is 241, being 41 in excess of the legal requirement. Of this

number 213 are free, and 28, as shown by the books of the school, are pay students. The number of students in the model department is 126, making the total number of students in both departments 367. In the normal department the number of males is 28, the females 213; the difference in the number of males and females results from the fact that there are other institutions in the State especially devoted to the education of males; and further, because the meager salaries paid teachers in this State are not sufficient inducement to males to prepare themselves for the vocation of teachers, better advantages being offered in almost every other avocation of life.

Your committee would further report, that for want of time they did not make a thorough examination of the books and vouchers submitted to them by Prof. M. A. Newell, the Principal, although urged by him so to do. Your committee, however, herewith present his detailed statement of the receipts and disbursements for the year ending October 1st, 1879, which they think correct, and which shows an increase in the amount paid for salaries over the preceding year of \$246.11, and that \$980 more than received from the State are paid for salaries of teachers alone, and all the other expenses are paid out of the receipts from tuition fees.

Prof. Newell's son is not an employe of this school as has been said, and never has been, in any capacity. As there are a large number of female students in the school it is eminently proper that some female member of the Principal's family should be engaged in this school. His daughter is one of the teachers at a salary of \$600, and the only member of his family employed in the school.

The furniture of the school is plain and substantial, the building clean and neatly kept and in good repair, except that it needs painting, and a pavement of some kind in the cellar.

All of which is respectfully submitted.

Murray Vandiver, Chairman; Thos. G. Hayes, John F. Williams, James C. Littleton, Robert A. Dobbin, Chas. L. Wilson, B. L. Turner, Jas. M. Touchstone.

THE SCHOOL-ROOM.

OUTLINE FROM IOWA NORMAL INSTITUTE COURSE.

DIDACTICS.

The Philosophy of Education.

I. THE SUBJECT OF EDUCATION—*The Human Being in Childhood and Youth.*

A. His educational susceptibility: 1, a constitutional and fundamental quality; 2, the basis of all growth.

B. This susceptibility considered: 1, as to the body: *a*, its growth from infancy—how? *b*, its adaptability under training to all requirements; 2, as to his mind: *a*, its growth from infancy—how? *b*, in the individual, its adaptability, under education, to all requirements more limited; *c*, common characteristics of the race; *d*, special characteristics of the individual.

C. Classes of mental faculties or of phenomena. 1, the universal phenomenon, consciousness; 2, attention: *a*, its importance the foundation of all intellectual greatness; *b*, its relation to consciousness, including: (*a*), observation; (*b*), reflection; (*c*), memory, retentions of cognitions; 3, how attention may be deepened; *a*, repetition—not of mere words, but of vivid views of ideas and thoughts coupled with language; *b*, reflection; *c*, association; 4, how secured: *a*, a fixed determination on the part of the teacher to have it; *b*, a clear knowledge of the lesson at ready command; *c*, a suitable interest excited concerning the subject taught; *d*, the eye free to view all and each in the class; *e*, the manifestations of earnestness; *f*, a simple manner and style; *g*, the removal of all obstacles.

D. The intellect: 1, the senses. *a*, enumeration of them and function of each; *b*, the information gained by them necessary and antecedent to all external knowledge; *c*, their systematic cultivation—object lessons; 2, memory: *a*, its

nature ; *b*, its importance for intellectual strength ; *c*, its cultivation ; 3, the reflective faculties : *a*, the synthetic process—generalization ; *b*, the analytic process—reasoning.

E. The sensibilities : 1, the emotions : *a*, their nature ; *b*, classification ; 2, the affections : *a*, their nature ; *b*, classification ; 3, the desires : *a*, their nature , *b*, classification ; 4, the will : *a*, the elements involved in the act of the will : (*a*), motive ; (*b*), choice ; (*c*), execution ; *b*, the regulation and culture of the will ; 5, value of strong will-power under the guidance of conscience and reason.

II. DISCUSSION OF WHAT EDUCATION IS.

A. It has special departments : 1, physical ; 2, intellectual ; 3, æsthetical ; 4, moral.

B. It is a result consisting of : 1, development ; 2, discipline ; 3, strength ; 4, skill.

C. It is a process consisting of : 1, teaching ; 2, training.

D. Principles regulating teaching and training : 1, special principles—the intellect in particular ; *a*, in childhood the perceptive powers are very active, so are comparison, memory, and the imagination ; *b*, ideas of the outward world are obtained by perception ; *c*, ideas thus obtained form the foundation of intellectual growth ; *d*, a well-chosen system of object lessons (form, number, color, things, etc.,) should form a part of primary instruction ; *e*, language should not precede the evolution of ideas and thought, but accompany them ; *f*, the mind has no pleasure in confused and indistinct impressions, and cannot be benefitted by them ; *g*, every subject should be reduced to its elements and one thing taken at a time : proceed step by step ; *h*, out of the known develop the unknown ; *i*, order must be observed—first objects, then names ; thoughts, then sentences ; knowledge, then definitions ; facts, then laws ; phenomena, then principles ; concrete ideas, then abstract ; sometimes wholes, then parts ; constituting synthesis. Hence the error of committing to memory definitions, rules, and formulæ, without their meaning having been discovered ; *j*,

memory is assisted by repetition, reflection, association, and action ; *k*, each process of instruction should include full perception, distinct understanding, clear expression, and, when possible, the passing of thought into action ; 2, general principles ; *a*, education is based on the constitutional nature of the child, the peculiarities of each sex and of each child should be carefully studied ; *b*, education pertains to the whole organism ; *c*, the desire of children for muscular movement must not be repressed, but regulated ; *d*, all education consists in doing and not doing, or exercise and inaction. What is desirable is improved by activity ; tendencies to be repressed are kept dormant. This is the law of habit and experience ; *e*, all activity should be pleasurable and varied ; *f*, the child is not a passive recipient of external influences. The root of the work is in the scholar and not in the teacher ; *g*, the teacher must have the voluntary and active co-operation of the pupil ; *h*, the office of the teacher is to set the mental machine in motion ; to bring forth the forces ; to apply them in an efficient manner, in the right proportion and in the right order ; *i*, all school doings and school sayings must be made pleasant ; *j*, school government must not admit any despotic or cruel tendencies ; *k*, example is more weighty than precept.

SCHOOL ECONOMY.

1. ORGANIZATION.

A. Provision relating to order : 1, the seating ; *a*, the teacher has a right to seat the school in a manner that will promote the greatest good ; *b*, suggestions as to plans of seating ; 2, school evolutions ; *a*, evolutions for the whole school ; *b*, evolutions for classes ; *c*, recitation tactics for each subject, as reading, penmanship, arithmetic, geography, etc.. 3, treatment of privileges ; *a*, general principles concerning privileges ; *b*, method of granting it ; (*a*), going out ; (*b*), leaving seats ; (*c*), speaking, etc. ; 4, the programme should provide for : *a*, opening and closing exercises ; *b*, intermissions ; *c*, recitations ; *d*, study ; *e*, transaction of general business ; *f*, administration of

discipline; 5, attendance and tardiness: *a*, the necessary records; *b*, manner of keeping them; *c*, notices to parents, publication of Honor Rolls, etc.

II. DEPORTMENT.

A. Inculcate general morality—instruct in cardinal virtues: 1, truth; 2, purity of speech; 3, love; 4, good nature; 5, industry; 6, temperance; 7, politeness; 8, honesty; 9, integrity; 10, preferring one another.

B. School morality: 1, put behavior at school on the law of morality—wrong-doing in school deportment is *sin*; 2, instruct as to neatness, promptness, quietness in walking, whispering, laughing, handling books and slates, etc.; observance of school plans.

III. STUDY.

A. Branches to be studied in the school.

B. Branches to be studied by each pupil.

C. The formation of classes.

D. Examinations, oral and written.

E. Recitation records.

IV. GOVERNMENT.

A. The object of government: 1, to teach that government is supreme; 2, cultivate the habits of obedience and subjection; 3, to facilitate the employments of the school; 4, to promote the general good.

B. Means of preventing offences: 1, suitable accommodations; 2, qualified teachers.

C. Good management: 1, have a definite understanding with pupils as to rules and regulations; 2, conduct the school according to your sense of the fitness of things; 3, make it appear that you entertain large expectations of your pupils, both as to study and deportment; 4, maintain your system, and adhere to your programme; 5, practice self-denial for the good of your school; 6, be in no haste to inflict punishment, especially corporal punishment; 7, let your administration be wise, certain, consistent, and uniform; 8, display charitable,

generous, and kind feelings, and not an exacting, severe, and authoritative manner ; 9, so dispose your management that your pupils go through their duties without seeming to be guided ; 10, let all learning, as far as possible, be a process of delight ; 11, mind little things.

V. ELEMENTS OF GOVERNING POWER.

A. The teacher must have system : 1, time for everything ; 2, place for everything ; 3, method for everything

B. Energy.

C. Vigilance.

D. Firmness. 1, a will of great strength, but not obstinate ; 2, decisions must be made with certainty, and must be enforced steadily, wavering is fatal ; 3, a firm hand in government is a source of pleasure to pupils, because it is a source of certainty and security.

E. Confidence : 1, in the triumph of duty faithfully executed ; 2, in self ; 3, in pupils ; *a*, pupils are generally undervalued as to latent power ; *b*, offences by mistakes and inadvertency generally outnumber those committed by design and malice ; *c*, give more attention to the dull and vicious, than to the apt and moral.

F. Self-control : 1, self-possession of your intellectual forces ; 2, impatience must be repressed ; 3, anger must be crushed ; allow no antagonism between yourself and pupils and parents.

G. Personal influence : 1, bring moral, social, and intellectual worth to your support ; 2, maintain cheerfulness ; 3, withhold nothing in your power.

H. Culture : 1, refinement in manners ; 2, pleasant tones of voice ; 3, avoid affectation ; 4, consideration of the wants and comforts of all.

I CONSIDER a human soul without education like marble in the quarry, which shows none of its inherent beauties, until the skill of the polisher fetches out the colors, makes the surface shine, and discovers every ornamental cloud, spot, and vein that runs through the body of it.—*Addison*.

WHAT CONSTITUTES A LIBERAL EDUCATION.

I HAVE great respect for the classics, and would do anything within reason to spread the knowledge of them ; but a preliminary question must first be answered. *What* the classics are is not a matter of dispute, all agreeing that they are literary masterpieces, the study of which serves above all other studies to refine and liberalize the mind. But *where* are they ? As to this, opinions differ.

"The Greeks, madam," replied John Randolph, when Mrs. Jellyby asked him to contribute aid to that suffering people—"the Greeks are at your door." And some people think the classics are in the same vicinity ; dwelling, that is to say, in our mother-tongue in the sense in which the needy are at hand—not exclusively, but in such wise as to deserve our first attention. The President of Harvard College is one of these people. "I may avow," says President Eliot, "as the result of my reading and observation in the matter of education, that I recognize but one mental acquisition as an essential part of the education of a lady or a gentleman—namely, an accurate and refined use of the mother-tongue. Greek, Latin, French, German, mathematics, natural and physical science, metaphysics, history, and æsthetics are all profitable and delightful, both as training and as acquisitions, to him who studies them with intelligence and love, but not one of them has the least claim to be called an acquisition essential to a liberal education, or an essential part of a sound training." He adds: "The fruit of liberal education is not learning, but the capacity and desire to learn ; not knowledge, but power." This is explicit enough. For my own part I agree to it.—PAUL R. SHIPMAN, in *Popular Science Monthly* for June.

THE first locomotive was invented by Stephenson, of England, in 1804 ; in the same year Napoleon Bonaparte was crowned Emperor of France. In 1821 the locomotive commenced to transport people ; in the same year Napoleon died.

FIRST LESSONS IN AGRICULTURE,

ARTIFICIAL MANURE,

V.

71. The next advance in the manufacture of artificial manures was the discovery that mineral phosphates of lime were capable of being manufactured so as to produce the same mono-calcic phosphate, which had previously been manufactured solely from bone. This led to an extensive search for rocks, and other mineral deposits containing the tri-calcic phosphates, and the result has been a considerable decrease in the cost of the materials used in the manufacture, which has resulted in a cheaper supply for the farmer's use. The new description of super-phosphate of lime thus introduced was distinguished as mineral super-phosphate, that is to say, super-phosphate of lime manufactured from mineral phosphates.

72. Another source of phosphate is known as bone ash. This has been largely imported from South America, and is the ash of the bones, used for fuel to melt the tallow obtained from the herds of cattle slaughtered for their tallow, hides and horns. Many thousand head of cattle were thus slaughtered, and as fuel was scarce the bones were so employed. For many years the ash was not of any value, and immense quantities had been accumulated, when the bone ash suddenly became of great value by reason of its new use for the manufacture of super-phosphate of lime. Bone ash has since then been found valuable for many other manufactures.

73. It has been explained that bi-calcic phosphate is produced in the soil by the gradual decomposition of bones, and it may be added that the growth of vegetation arising from this use of bones is always of a most healthy character. Liebig's important discovery, which was intended to obtain the same results more rapidly, has been made use of very extensively,

but it has been recognized that we have to a great extent "over-manufactured" our phosphate, by converting it entirely into a mono-calcic phosphate. This more rapid process has not, however, accomplished the same result, and the unhealthy character of vegetation often testifies to this fact.

74. There is every reason to believe that the mono-calcic phosphate, by reason of its solubility, is easily distributed through the soil, but that it is too acid in its character to enter into the circulation of plants. If a manure containing mono-calcic phosphate be added to a calcareous soil, the lime with which it comes in contact combines with it, and the mono-calcic phosphate becomes changed into a bi-calcic phosphate, which gradually enters into the circulation of the plant. The presence of lime in a soil, even in a small proportion, accomplishes this result, and by reason of the less soluble condition to which it is thus reduced, there is also less danger of the phosphate being washed out of the soil. On many light sandy soils the use of ordinary super-phosphate is attended with great loss, as the mono-calcic phosphate is washed out of the soil by the rain passing through it. In these cases the use of bone is still found the most economical form for adding phosphate of lime to the soil, as this waste is thereby prevented.

75. It is, however, quite possible for the form of phosphate produced by the action of sulphuric acid on bone or other phosphates to be of the same character as that produced by the decomposition of bones in the soil. By the use of one-half of the sulphuric acid required to make mono-calcic phosphate, we obtain the same form of phosphate of lime as is produced in the soil when bones decompose in the ordinary manner. It is, as we have seen, a more desirable form of phosphate, so far as the healthy growth of vegetation is concerned.

76. One other subject, closely associated with super-phosphate demands notice in passing, viz., the "reduced phosphates." When a manufacturer has made a large quantity of super-phosphate, and has ascertained its strength by analysis, it very frequently happens that after a lapse of two or three months

the super-phosphate is found to be reduced in strength. It is then known as a "reduced super-phosphate." A super-phosphate having 25 per cent. of soluble phosphate is often found to be reduced to 22 or perhaps to 20 per cent. If the value of this super-phosphate were to be determined by analysis, the manufacturer would lose largely, because chemists base their estimates of the value of super-phosphates upon the quantity of soluble phosphate which they contain. As a matter of fact, manufacturers and many farmers know that the reduced super-phosphates, instead of being of less value, are really of greater value for the land, and will be found more valuable fertilizers than before the reduction took place. This appears a somewhat contradictory statement until the cause of reduction is known. The simple fact is that the mono-calcic phosphate which was present in the super-phosphate in the first instance, is diminished in quantity by a portion being changed into the form of bi-calcic phosphate, and this portion which has become so changed is no longer estimated by analysis as a soluble phosphate. All that has been so changed in character represents so much loss to the manufacturer, if he sells simply on the basis of the soluble or mono-calcic phosphate present. At the same time it means an actual increase in the value of the manure, for those farmers who use these "reduced super-phosphates" find that they are generally more lasting in their action and altogether more valuable manures.

77. This "reduction of super-phosphates" may be, and is produced artificially, by an admixture of finely pulverized bone. Some of the highly-soluble phosphate is thus reduced to the slowly-soluble form, and yet the fertilizing power of the manure is increased.

78. There is another class of artificial manures which are chiefly distinguished by the presence of nitrogenous compounds. Peruvian guano is one of the richest manures of this class. Its value depends not only upon the large quantity of ammonia which it contains, but upon the fact that it is mixed with various other valuable fertilizers. Guano is the dung of sea

birds, which has accumulated for many centuries in a climate where there is but little rain to injure it. It was first imported into England in 1839, and at that time the supply in Peru was very large, some of the beds being fully 200 feet in depth. Many millions of tons have been exported since that time, and the quality is not so good now as it used to be. An average of fifty cargoes, imported into England before 1855, contained nitrogenous matter equal to rather more than 17 per cent. of ammonia. At the present time, it may be taken as containing nitrogenous matter equal to about 8 or 10 per cent. of ammonia. Peruvian guano also contains a large quantity of phosphates in an exceedingly valuable form, and these add to its value.

79. In 1864, Dr. Voelcker recommended the treatment of Peruvian guano by the use of a small percentage of sulphuric acid, with the twofold object of rendering the ammonia it contained non-volatile, and for making the phosphates more quickly soluble in water. The first was accomplished by the sulphuric acid combining with the ammonia, and forming sulphate of ammonia. The second change arose from the phosphate being converted into mono-calcic phosphate.

80. Sulphate of ammonia is another nitrogenous manure, and exerts as great an influence as a fertilizer as the Peruvian guano, if not greater. This is prepared from what was once known as the waste liquor of gas works. It is a waste liquor no longer, as it is carefully sought after for the production of sulphate of ammonia. This manure is a white crystalline substance, more or less discolored by impurities, and is obtained by first adding sulphuric acid to the gas liquor in sufficient quantities to combine with the ammonia, after which the sulphate of ammonia is crystallized in the usual manner. The chief bulk is employed by the manufacturers of artificial manures, who fully understand its value, and use it in proper combination with other fertilizers. Its value depends upon the percentage of ammonia which it contains.

A FEW QUESTIONS FOR TEACHERS TO ANSWER.

1. Do we teach our pupils to think and form conclusions for themselves, or do we do their thinking for them and feed them with the results of our own investigation? thereby teaching them to rely upon us, instead of upon themselves, and depriving them of that confidence in themselves which is so essential to success in life.

2. Do we require them to explain the different parts of the subjects over which they pass, or do we make the explanations and simply require them to answer "yes" or "no" as they understand, or fail to understand what we are endeavoring to expound to them? In this way, locking up their imperfect ideas in their own minds and laying the foundation for inability to express themselves lucidly on any subject.

3. Do we compel them to be thorough in what they pass over, or do we content ourselves with *believing* they understand it, without taking the necessary pains to *ascertain* whether they do or not?

4. Is our teaching systematic, and are we sure that our pupils have a classified knowledge of the studies they are pursuing, or do we simply burden them with a lot of isolated facts, without any regard to their relation to one another?

5. Do we give questions in regular order and suited to the grade of the pupils, or do we persist in puzzling them with difficult questions, or trifling with those belonging to lower grades which we know they can answer readily?

6. Do we extend our studies beyond the narrow limits of the text-book and teach our pupils that the book belongs to the subject upon which it is written, instead of the subjects belonging to the book, or do we content ourselves with the examples and propositions laid down by the author, regardless of the associations and comparisons which it is our duty to make?

7. Do we study our pupils as well as our books and adapt our rules and methods to the peculiar disposition of each one, or do we make an iron bedstead of these rules and methods

and cut all our pupils to fit it, disregarding the diversity of traits and propensities that may exist among them?

8. In our general conduct, both in school and out, do we set our pupils an example worthy of imitation, or are guilty of doing or saying things for which we would punish them? Do we appear neat, orderly, polite, and indicate to them the way that they should go by going in that direction ourselves?

9. Do we endeavor to educate our pupils intellectually, morally, physically, or do we pay all our attention to their intellectual advancement and close our eyes and ears to the fact that the ultimate success of every individual must stand upon the great tripod of intellectual, moral and physical development, and that the omission of any one of these three great factors destroys the utility of the remaining ones?

10. In fine, are our methods of instruction, our rules and regulations, our precepts and examples such as tend to the normal development of the faculties of our pupils, and to prepare them for the business of life and the duties of good citizens and good men?—T. BAGOT, *in the Normal Teacher*.

HAMPTON NORMAL AND AGRICULTURAL INSTITUTE.

[From the Report of the Principal, May 19th, 1880.]

THIS school opened in April, 1868, with 15 pupils and one teacher and a matron. Up to this time 1,429 have been admitted; some of them remained but a few weeks. Including this year's class of thirty-eight, 353 have graduated. Of these 11 have died. Not less than ninety per cent. of graduates have devoted themselves to the work of teaching their people, with a success and steadfastness which on the whole surpasses expectations and gives the strongest encouragement for continued efforts for their race. The negro teacher like the negro laborer, on his own ground can hold his own, and is the best man for the place.

This year's enrollment has been as follows: Colored men, 181; colored women, 105; Indian boys, 47; Indian girls, 21; total, 354. Average age of young women, $18\frac{1}{2}$ years; average age of young men, 20. There has been a gain of 32 colored students over last year; less day scholars, but more boarders. The catalogue of the year gives further particulars.

Resting directly upon public confidence with no intermediate society or denomination, a clear statement of the ends of the school, and of the means employed, should, I think, be made from time to time, at the risk of repetition, for the sake of the benefit that is sure to come from an intelligent appreciation of proper efforts for the ex-slaves of our country, now citizens with power for good or for evil.

Our end is not to develop the mind of the negro by collegiate studies—that is a leading aim of the principal colored institutions of the country; but rather to build up manhood and character in our pupils, and through them among their people.

1st. By combining with a course of English studies a manual labor training, which shall not only be instructive, but promote self-reliance and character, and help many of this poverty-stricken people to secure an education by their own efforts.

2d. By co-education of the sexes: giving an equal chance to those on whom equally depends the future of their people.

3d. By sending out teachers fitted for the care of the free schools of the South (the demand for whom is now far in excess of the supply), willing to do and endure the duties and difficulties of working in poor and unattractive regions, where most of their people live, as well as capable of the higher and better positions in cities, to which they are sometimes called.

The education of Indians, which is an incident of our work for the blacks, has in no way interfered with it, the latter having not only not suffered from this cause but steadily grown in magnitude and efficiency. It has taught the negro that there are other grievances than his own in the world, and enlarged his ideas and sympathies by making him useful to

others. I am convinced that our work for negro civilization offers peculiar advantages for improving Indians. No change of methods or of direction has been required. There is no race jealousy or friction to speak of.

The difficulty with both races is not so much ignorance as weakness or deficiency of character; not lack of brains but of moral stamina. Both need drill throughout the range of living.

It is not wise to adjust a work like this to the needs of the unusual, exceptional characters who are to be found in these races, but rather to their average condition as represented by those who are received from a wide range of country.

The knowledge of the English language by the negro race gives it an advantage without a parallel in the history of any race in a similar condition. With this language, and in contact with those who use it, they have imbibed ideas, a certain spirit, and have gained an access to the resources of civilization that offset the darker experiences of the past, and encourage us to expect a survival and rise of the ex-slaves of our country.

The testimony of Southern educational men to the success of our graduate teachers since 1870 has been all that we could wish. They are now in greater demand than ever for the charge of the free colored schools of this and other States, over 20 more than we could supply having been called for this year. From 10,000 to 20,000 children have been taught by them the past year. The majority of them are in the country, with salaries from \$25.00 to \$30.00 a month for five and six months, which have of late been paid with promptness. During the off months, the industrial training received here gives them resources which they find indispensable. Many teach winters and farm in summer. This is the routine of a country teacher. Without an industrial education they would seek the cities, might fall into temptation and be lost to the cause of education. In North Carolina, several teach in winter and raise cotton in summer.

FIRST LESSONS IN BOTANY.

BY G. L. SMITH.

XIX. BUTTERCUPS.

Teacher.—We began our lessons in Botany by studying the *Petunia*, because it was the most typical flower we could find at that time. The Buttercup is much more typical, for all of its parts are distinct and each is attached directly to the receptacle. (Fig. 16.) For this reason botanists have placed Buttercups and their family at the head of the VEGETABLE KINGDOM. How many kinds of Buttercups did you ever see?

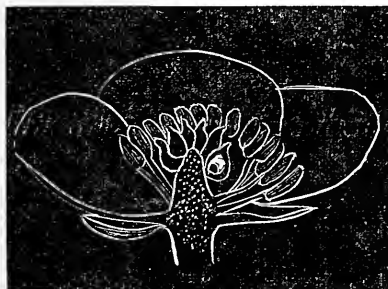


Figure 16.

P.—I thought they were all alike, except that some grew taller than others.

T.—I have collected and analyzed seven different species in the vicinity of Baltimore, and there are some twenty in the eastern part of the United States. So we must look more closely

at them, and will begin by analyzing this most common one, known as the *Bulbous Buttercup*. Describe the whole plant.

P.—It is herbaceous, covered with hairs, and I would think from the bulbous base that it might be a perennial.

T.—It is a perennial herb, and the root consists of thick, fleshy fibres which proceed from the bulbous base of the stem. What can you say about the leaves?

P.—Some of the leaves are radical and of a different shape from those on the stem. They are all very much cut up.

T.—If you will look closely you will see that they are all divided at first into three larger parts, and then each of these is subdivided into numerous smaller divisions—thus we say that the radical leaves are *ternate*. Each leaflet is petiolate.

Notice also that the lobes of the leaflets are rounded. How do the cauline leaves differ from the radical?

P.—They are alternate and have petioles which half clasp the stem; besides the lobes of the leaflets are much narrower than they are in the radical leaves.

T.—Describe the peduncle.

P.—The peduncle is at the end of the main stem or of a branch, and is pubescent like the rest of the plant. There are little creases in the peduncle just as there are in the stem.

T.—These creases are generally called furrows, and we say that the peduncle or stem is *furrowed*. What kind of flowers has this plant?

P.—The flowers are solitary on the terminal peduncles, of a golden yellow color, perfect, complete and regular.

T.—Count the parts and see if the flower is symmetrical.

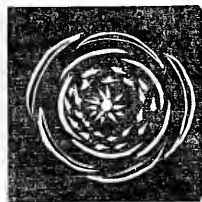


Figure 17.

P.—There are five sepals, five petals, about fifty stamens and twenty pistils. Each of these is a multiple of five, so that the flower must be symmetrical and on the plan of five.

T.—If you will cut a horizontal section of the bud and make a diagrammatic representation of it, as in Fig. 17, you will see that the parts in the different rows are arranged alternately; the petals alternating with the sepals, the outer row of stamens with second row, and so on to the centre. The arrangement of the parts of a flower follows the same general law that the arrangement of the leaves on a stem does, and in most flowers this arrangement can be seen in a section of the bud—sometimes the parts are opposite and sometimes alternate. Describe the calyx.

P.—The calyx is greenish yellow, and the sepals bend back until they touch the peduncle.

T.—The calyx in such a case is said to be *reflexed*. Notice that in the bud the sepals overlap each other at the edges, that is, are *imbricated*, and when the petals and essential organs are ready to unfold, the sepals gracefully retire and give the other

parts full scope to develop. Sometimes they even drop off as the petals begin to spread. What is the shape of the petals.

P.—They are almost round, with a short claw, and a little scale on the inside of each claw. (Fig. 18.)

T.—These claws form the honey sacks or *nectaries*, and the honey which they contain, together with the bright color of the petals, attract the insects and by them the pollen is transmitted from stamens to stigmas. How are the anthers attached to the filaments?

P.—They are attached at the sides of the filaments.



Figure 18.

T.—Then they are *adnate*: and notice that each lobe of the anther is split open lengthwise. Cut one of the pistils in two and tell me how many seeds there are in it.

P.—There is but one seed in each.

T.—What is the shape of the pistils and of their seeds?

P.—The pistils are flat and attached to the receptacle by their sides. They have no styles, but little hooked points at the upper ends, which I suppose are stigmas. The seeds are flat and roundish, like little lenses.

T.—These pistils, each with a single ovule free from the carpel which contains it, are called *achenia*. (*Singular achenium*.)



Figure 19.

These achenia form a roundish ball or head (Fig. 19) after the other parts of the flower fall off, and increase very much in size.

The name of this family is *Ranunculaceæ*, which is derived from the name of the principle genus, *Ranunculus*, that of the Buttercups. The name of the genus comes from the Latin word *rana*—a frog, because several of the species are found in sluggish streams or ponds, where they have frogs for their companions. The name of this species is *bulbosus*, named from the peculiarity of the lower part of its stem.

This *Ranunculus bulbosus* is generally found in open fields

or meadows. Other Buttercups which are common in this State are: *R.*, *fascicularis*; *R.*, *repens*; *R.*, *abortivus*; *R.*, *acris*; *R.*, *recurvatus*, and *R.*, *Pennsylvanicus*, and each of these can be readily distinguished from the others principally by the leaves.

ANALYSIS.

Plant.—Herbaceous, perennial, hairy, with colorless acrid juice, common in pastures, May and June.

Root.—Thick fibres proceeding from bulbous part of stem.

Stem.—Erect, bulbous at base, leafy, branching, hollow, furrowed, six to eighteen inches high.

Leaves.—Ternate, lobes rounded, *radical* with leaflets petiolate *cauline* leaves alternate, with half clasping petioles.

Peduncle.—Pubescent, furrowed.

Flowers.—Terminal, solitary, perfect, complete, regular, symmetrical, parts alternating, golden yellow.

Calyx.—Reflexed, greenish yellow; *sepals*, 5; ovate, distinct, imbricated in the bud, smaller than the petals.

Corolla.—Cup shaped; *petals*, 5; roundish, distinct, yellow, shining on upper side, scale forming nectary on claw of each petal.

Stamens.—Many (about fifty) distinct, hypogynous, anthers adnate, opening longitudinally.

Pistils.—Many (about twenty) distinct; *style*, none; *stigma*, curved, sessile.

Fruit.—Achenia in a roundish head; one seed in each carpel.

A SCHOOLBOY got up and read a composition on "The Tree." He got as far as: "This subject has many branches," when the teacher said, "Stop, you have not made your bough yet." "If you interrupt me again," said the boy, "I'll leave." "You young limb," said the teacher, "if you give me any more impudence I'll take the sap out of you. Such language is the fruit of a spirit of insubordination which I must root out." "I twig," meekly replied the boy, and the regular exercises proceeded.

PRACTICAL TEACHING:

CONSIDERING their drawbacks, the immense number of special industries for which they are preparing youth, the schools are doing wonders in the line of giving a practical education. They do not turn out young persons proficient in every branch or competent to handle any kind of business, but they lay such a foundation that their graduates are well prepared to begin any work that circumstances throw in their way, and they have the educational momentum that will hurry them on to a degree of success in whatever they undertake, that is impossible in the case of the uneducated or the ill-educated.

The schools can not and should not try to turn out expert book-keepers any more than they can graduate skillful horse-shoers or machinists; and yet that they do not accomplish all such impossibilities seems an insuperable objection to them on the part of chronic grumblers. Doubtless the normal graduate is full-fledged for her work like Minerva, bursting from the head of Jupiter, full armed, self-poised, and ready for any encounter either of wit or of war; and yet we have seen normal graduates who would have been better off eventually if they had not been so awfully armed and equipped at their graduation.

It is better policy for the schools to give a fair education in a general way than to go too minutely into any one department to the neglect of general acquirements. It is the plan of the Jesuits to confine talent to a specific channel; but the industries of this country are too various, its fields too wide, its possibilities too great to predetermine what a youth shall or shall not be, and shape his schooling accordingly. If the school so trains the mind of a youth that he is willing upon entering the world to commence the study of a business or a profession, it has done all that can be expected of an institution supported by public taxation.—*The Educational Weekly*.

HOOKE says "that true science is the law whose seat is the bosom of God; her voice the harmony of the world."

DOLLARS vs. BRAINS.

WE are neither agrarian nor communistic. We believe in dollars. We believe it is right to earn them, to hold them, to use them. They are a necessity, a convenience, a defence. We blame no man for striving hard to gather them as a surety against the weaknesses of age. We confess to a knowledge of their power for good or for evil. We know in our own day how, by their power, gilded rascals go unwhipt of justice, while herring-stealers get the full penalty of the law, as terrible examples of the certainty and surety of justice. We know, too, how good men have used and do use them in alleviating all forms of human misery and want and helplessness. We know all this, and take it at its full value. We only object to them when they become instruments of oppression or wrong doing.

We believe, strongly, in brains. They, too, are a power; they are valuable; they are a defence. Like money, they have done much good in the world; unlike money, they have never been the cause of a wail of sorrow, nor the dropping of a tear.

Between these two potential forces there has been carried on since the world began a strife or conflict. Dollars backed by ignorance and sustained by numerous allies, enters the lists against brains, undisciplined, unorganized, and striving alone. In such cases brains are badly beaten. They will continue to be beaten just so long as they continue in this unorganized, illy-prepared condition.

In these contests, much as we desire the golden ducats, we are on the side of brains, and we mean to stay there until all kinds of mental labor or brains receives its just appreciation from the hands of dollars.

In the class of brain-workers we place teachers at the head. From time beyond the memory of man, they have as a class been underpaid and undervalued, always beaten in the contest

with dollars, always a necessity, always considered essential to the well-being and security of the nation, yet always in the anomalous condition of not being consulted as to the amount of pay they should receive.

All other professions have something to say about the amount they should receive for their services. Lawyers and doctors fix the minimum amount to be received for special services, and, as a general rule, they do not go below the card price. Mechanics, by means of their societies, St. Crispin or St. Somebody, lay down the law that they will not work for less than a specified rate, and they get it. The card price is maintained at all hazards.

Not so with teachers. Their wages are fixed by school-boards composed in a great measure of men who are utterly incompetent to frame a just judgment of the nature of the service, much less its value. This rate must be accepted. Their duty seems to consist mainly in selecting the person who is willing to teach; fixing the rate of pay, frequently cheapening like a huckster. The cheaper, the better seems to be their idea of the eternal fitness of things, ignorant of the great fact, that cheap things of this character are dear at any price.

We have seen school-boards divided and quarelling until the whole population of the district were drawn into the affair, as to whether the teacher should receive eighty-five or ninety dollars a quarter. The real-estate valuation of the district was not less than half a million dollars.

Under such an exhibit of wisdom and magnanimity and fair dealing, is it any wonder that brains becomes disgusted with dollars, and incontinently backs down and out?

Is it to be wondered that the spirit of scorning and fault-finding with the teacher is prevalent among the people, when those who have the control of school matters dicker and chaffer and eagerly contend as to the possibility of saving seven cents a day on the salary of the teacher!

What remedy is there for this state of affairs? How shall the teacher escape the upper and the nether millstone? When will they be thoroughly conscious of the causes that tend to cast them down? When will they resent the attacks of these political clowns, who sit in judgment upon their value and legislate for them in the same spirit and manner as for the public mendicants and the criminals? When will the intelligent public be aroused to another truth, that it requires more sense, more brains to be a competent school director than it does to be a senator or a governor?

We suggest the following for the consideration of all teachers, as possible remedies. They may not be feasible, but agitation on the subject can do no harm.

1. The formation of a teachers' league throughout the United States, the primary object of which shall be to fix the minimum rate to be paid to any teacher, in any capacity, or in any place.

2. To impress upon the public mind the necessity of getting better talent in the school boards, not only in large cities but in small villages, so that the employers of teachers shall be good and true judges of teachers' work.—*The Teacher*.

A REFORMED orthography is to be introduced into all the Prussian schools. All new school books will hereafter be printed with the reformed spelling, and no educational works with the old spelling will be used in schools after the lapse of a certain interval. The governments of Austria, Bavaria, and Wurtemberg have also adopted the new spelling.

ST. LOUIS has fifty-two public kindergarten schools, besides the morning and afternoon schools. The number of paid teachers in the kindergartens is 150, and of "teaching pupils," 47. Last quarter the average number of pupils was 4,503; total number in the kindergartens for ten weeks, 5,838.

EDITORIAL.

Two questions in the City Examination will provoke curiosity, if nothing more. We give the answers according to the best authorities. For ourselves we prefer to say nothing.

(1.)—*The Derivation of "Eleven."*—Mr. Skeat in his Etymological Dictionary says: "ELEVEN, ten and one. (E.) M. E. *enleuen* (with *u=v*), Layamon, 23364.—A. S. *endlufon*, Gen. xxxii., 22; where the *d* is excrement, and *en=án*, one; also the *-on* is a dat. pl. suffix; hence the base is *án-luf* or *án-lif*. + Du. *elf*. + Icel. *ellifu*, later *ellefu*. + Dan. *elleve*. + Swed. *elfa*. + Goth. *ainlif*. + O. H. G. *einlif*, G. *eilf*, *elf*. B. The Teutonic form best appears in the Goth. *ain-lif*. 1. Here *ain=* A. S. *án=*one. 2. The suffix *-lif* is plainly cognate with the suffix *-lika* in Lithuanian *vėnolika*, eleven, Fick, ii., 292. And it is probable that *lika=*Lat. *decem*, ten. The change from *d* to *l* occurs in Lat. *lingua*, *lacruma=dingua*, *dacruma*. Der. eleven-th." (The sign (—) means derived from; (+) means cognate with.)

(2.)—"With antic pillars massy proof." (Parse proof.) Masson in his edition of Milton, vol iii., p. 389, says: "'Massy-proof'; perhaps proof against the mass they have to support. The word is one of curious formation; if indeed Milton intended it as one word, for in the first and second editions it is printed as two without a hyphen, 'massy proof.' Did he mean 'massively proof'?" When a learned professor has nothing but a "perhaps" and an "if" and a "?" how can a poor candidate for an assistant's place in a primary school be expected to settle the question?

SYNOPSIS of Forty Lessons in Botany at the State Normal School of Maryland:

I. Analysis of flowers to learn the names of parts, with drawing and written description of each part.

II. Examination of bean and corn in the different stages of development.

III. Seeds given out to be planted, and one taken up each week, and, after being drawn and described, pressed and marked.

IV. In spring—flowers given to class to analyze them and determine the name of the genus and species, with the aid of "Class Book of Botany."

V. Field lessons, for the purpose of gathering specimens and studying them *in situ*. These specimens analyzed, compared with herbarium, and preserved.

Results.—The members of the class have acquired some taste for the study; they have learned to observe and describe; they can analyze and name all common plants; they have made the beginning of a herbarium for each student, and they can teach what they know.

MARYLAND STATE TEACHERS' ASSOCIATION, 1880.—The annual meeting will be held at Ocean City, on the 6th, 7th and 8th of July. The round trip ticket, good for ten days, from Baltimore (and return) by boat is \$4 to members of the Association. The executive committee expects to make arrangements for reduced rates on railroads, but they are not yet completed. The board at Atlantic Hotel, Ocean City, will be \$1 a day to members during the three days that the Association is in session. Those who desire to stay longer will pay regular rates, not exceeding \$12.50 a week.

Tickets of membership for teachers and their friends may be obtained from the Secretary, A. F. Wilkerson, Male Grammar School, No. 17; Chas. G. Edwards, English-German School, No. 5; Prof. A. S. Kerr, Western Female High School; Prof. W. F. Wardenburg, Eastern Female High School, or Prof. M. A. Newell. It is necessary to present these tickets to secure reduced rates.

Members can leave Baltimore by the boat (South Street Wharf, 5 P.M.) on the evening of the 2d, 4th, 5th, 6th or 7th, and return on the 8th, 9th, 10th or 12th.

Ocean City is the Cape May of Maryland; it is the most popular watering place in the State. The hotel is on the beach, on the very verge of the Atlantic Ocean. The bathing is unsurpassed. Teachers cannot select a better place to recuperate in after the fatigue of a year's work. The exercises of the Association will be so arranged as to give large liberty for recreation and social enjoyment.

Addresses will be delivered by Governor Hamilton, John M. Carter, Esq., Major John Y. Yellott, and the President of the Association.

List of Officers.—M. A. Newell, President; P. A. Witmer, First Vice-President; W. E. Thompson, Second Vice-President; A. F. Wilkerson, Recording Secretary; A. G. Harley, Corresponding Secretary; C. G. Edwards, Treasurer. *Executive Committee.*—C. G. Edwards, Chairman; Geo. M. Upshur, Geo. Covington, Geo. W. Cooper, T. C. Bruff.

Standing Committees—*On Defence.*—M. A. Newell, P. R. Lovejoy, W. E. Thompson, W. Logan Baird, P. M. Leakin. *On Discipline.*—A. N. Ebaugh, S. Whittington, Mrs. M. A. Hiskey. *On School Examinations and Exhibitions.*—A. G. Harley, Geo. S. Grape, Miss Eliza Adams. *On Text Books.*—E. E. Ijams, Jno. Squier, Miss M. A. Thomiz. *On Teachers' Institutes.*—J. W. Thompson, A. A. Chaplain, W. H. Harlan. *On Physical Culture.*—Miss Mary Kane, A. C. Mulliken, Miss Belle Hampson. *On Spelling Reform.*—C. F. Raddatz, Dr. C. K. Nelson, J. M. Garnett, C. C. Wight. *On Metric System.*—A. F. Wilkerson, C. W. Virtue, G. E. Jackson. *Committees on Improvement in Text Books and Modes of Instruction—English.*—C. C. Wight, Miss Lou. Saumenig. *Latin.*—C. Maupin, J. M. Garnett. *Greek.*—Dr. C. K. Nelson, James E. Green, A. B. *Mathematics.*—Andrew S. Kerr, Wm. Elliott, Jr. *Modern Lan-*

guages.—Leonce Rabillon, Prof. De Gournay. *Natural Sciences*.—Robert S. Henry, Miss Emma Cowman. *Mental and Moral Science*.—P. M. Leakin, A. G. Harley. *History*.—A. C. Mulliken, Miss S. Ebaugh. *Geography*.—John A. Bahn, Miss A. Leaverton. *Arithmetic*.—F. A. Soper, A. G. Darcy. *Elocution and Reading*.—P. R. Lovejoy, Miss Belle Hampson.

BOOK NOTICES.

THE ART OF SECURING ATTENTION, by Joshua G. Fitch, M.A. (*Davis, Bardeen & Co., Syracuse.*) 44 pp., small quarto. Price, 15 cents.

A very small book, at a very small price, but very well worth reading nevertheless. It is itself an exemplification of the problem discussed, for the first page fixes the attention, so that the reader never wearies till he gets to the last, and then wishes that the end had not come so soon.

A PRACTICAL TREATISE ON SEA-SICKNESS, by George M. Beard, M.D. (*E. B. Treat & Co., New York.*) 74 pp., 12mo.

"The best treatment of sea-sickness is to prevent it, and the best way to prevent it is to take large doses of bromide of sodium, say thirty, sixty and ninety grain doses, three times a day, three or four days before starting, and keeping this up while at sea, until there is well grounded reason to believe that all danger is over."

GUIDES FOR SCIENCE-TEACHING. No. VI. The Oyster, Clam, and other Mollusks, by Alpheus Hyatt. (*Ginn & Heath, Boston.*) 66 pp., 12mo., with many illustrations.

A handy and trustworthy guide to the study of the oyster; but it is a pity that such English as the following should have escaped the author's notice: "There are certain characteristics of the body of the oysters of the highest interest, which show that the bilateral symmetry of the parts have been modified greatly by the habits of life of the oyster, but which will be better understood after the study of the clam and other forms."

THE NEW AMERICAN ADVANCED SPELLER. (*J. H. Butler & Co., Philadelphia.*) 144 pp.

It contains "4,500 words, classified and arranged; 2,000 words not classified; 800 words common to most spelling-books; 800 words frequently mispronounced, and 1,500 test words." The pupil who learns and retains all these words should certainly be able to spell well. We are glad to see that our friends, the Butlers, do not expect the spelling reform to come in like a *flud*.

PUBLISHER'S DEPARTMENT.

McGuffey's Revised Readers have just been adopted for the cities of San Francisco and Sacramento, after a spirited competition among the advocates of different rival series. The schools are to be congratulated upon the introduction of these fresh and attractive books.

Golden Days (Elverson, Philadelphia), has fulfilled its promise, and is in every respect a suitable weekly paper to put into the hands of young boys and girls. We have carefully watched each number of this paper since the start, and have seen in it nothing to censure and much to praise.

North American Review for June. Contents: Popular Fallacies About Russia, by E. W. Stoughton; Divorces in New England, by Dr. Nathan Allen; McClellan's Last Service to the Republic, Part III., by G. T. Curtis; Has the Southern Pulpit Failed? by Rev. Dr. F. H. Shoup; Caste at West Point, by Prof. P. S. Michie; Some Interesting Publications, by M. W. Hazeltine.

The Journal of Speculative Philosophy for April. Contents: Schelling on Natural Science (Tr.), by Ella S. Morgan; Kant's Anthropology (Tr.), by A. E. Krøger; Hermann Grimm on Raphael and Michael Angelo (Tr.), by Ida M. Elliott; The Science of Education, by Anna C. Brackett; *Ars Poetica et Humana*, by John Albee; The Psychology of Dreams, by Julia H. Gulliver; Laws of Creation—Ultimate Science, by Theron Gray; Educational Psychology, by Dr. W. T. Harris.

The Musical Herald (Musical Herald Company, Boston), though a young magazine, is a decidedly successful one, if its appearance and contents are any criterion. The criticisms of new music, though always just, are frequently justly severe, the editor having no patience with compositions which, while conforming to the rules of harmonic treatment, have nothing in them to recommend them to the public. The compositions published in the *Herald* are musical gems.

Popular Science Monthly. Contents: The Classics that Educate Us, by Paul R. Shipman; Hysteria and Demonism, by Dr. Charles Richet; The Crossing of the Human Races, by H. De Quartrefages; Recent Geographical Exploration, by Chief Justice Daly; Dress in Relation to Health, by Dr. B. W. Richardson; Studies in Experimental Geology, by Stanislas Meunier; Views of Primitive Marriage, by Lorimer Fison; Goethe's *Farbenlehre*, by Prof. Tyndall; How Animals Eat, by H. L. Fairchild, and other very interesting articles by eminent writers.

The National Sunday School Teacher for June, besides its usual excellent and suggestive treatments of the lessons, has a capital article by "Pansy," on "Miss Perkins in Bewilderment," a humorous and instructive contribution by Mary E. C. Wyeth on "Teacher's Hindrances," a hint by J. B. T. Marsh on "The Deacon's Difficulty Box," that teachers will be glad for, and an essay on "Primary Class Work," by Mrs. R. M. Tuttle. \$1.25 per year; Adams, Blackner & Lyon Publishing Company, 147 and 149 Fifth Avenue.

OUR CLUB-RATES with the principal American journals are as follows : Subscriptions must be forwarded through the JOURNAL—

Scientific American.....	\$3 20	With JOURNAL	\$3 60
Littell's Living Age.....	8 00	"	8 00
Scribner's Monthly.....	4 00	"	4 25
St. Nicholas.....	3 00	"	3 50
Appleton's Journal.....	3 00	"	3 50
Popular Science Monthly.....	5 00	"	5 25
International Review.....	5 00	"	5 25
Harper's Magazine.....	4 00	"	4 25
" Weekly.....	4 00	"	4 25
Journal of Speculative Philosophy.....	3 00	"	3 50

GEORGE R. NEWELL,

ATTORNEY AT LAW,

N. E. COR. LEXINGTON AND ST. PAUL STREETS,

BALTIMORE.

TO TEACHERS.

A short extra session of the State Normal School will open APRIL 27 and close JUNE 15. None but teachers will be admitted. Tuition will be free; boarding will cost *about* \$4 a week. A limited number of ladies can obtain board at \$3 a week, if application is made at once.

The course will include 20 lectures on Methods of Teaching; 10 lectures on Methods of Organizing and Governing Schools; and 20 lessons each on Geometry, Physiology and Book-keeping. Classes will also be formed in Reading, Arithmetic and other subjects, if desired. All students will be required to attend the *Lectures*; the other lessons will be optional. A course of private study will be arranged, extending through several years, preparatory to an examination for Diplomas at the close. For entrance, or further information, apply at once to

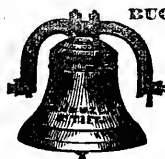
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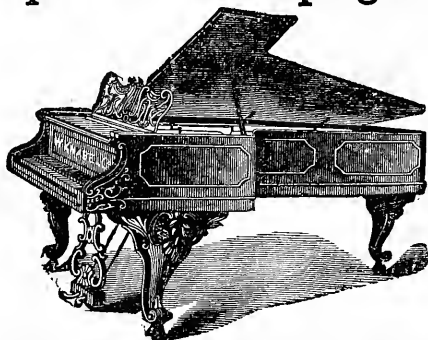
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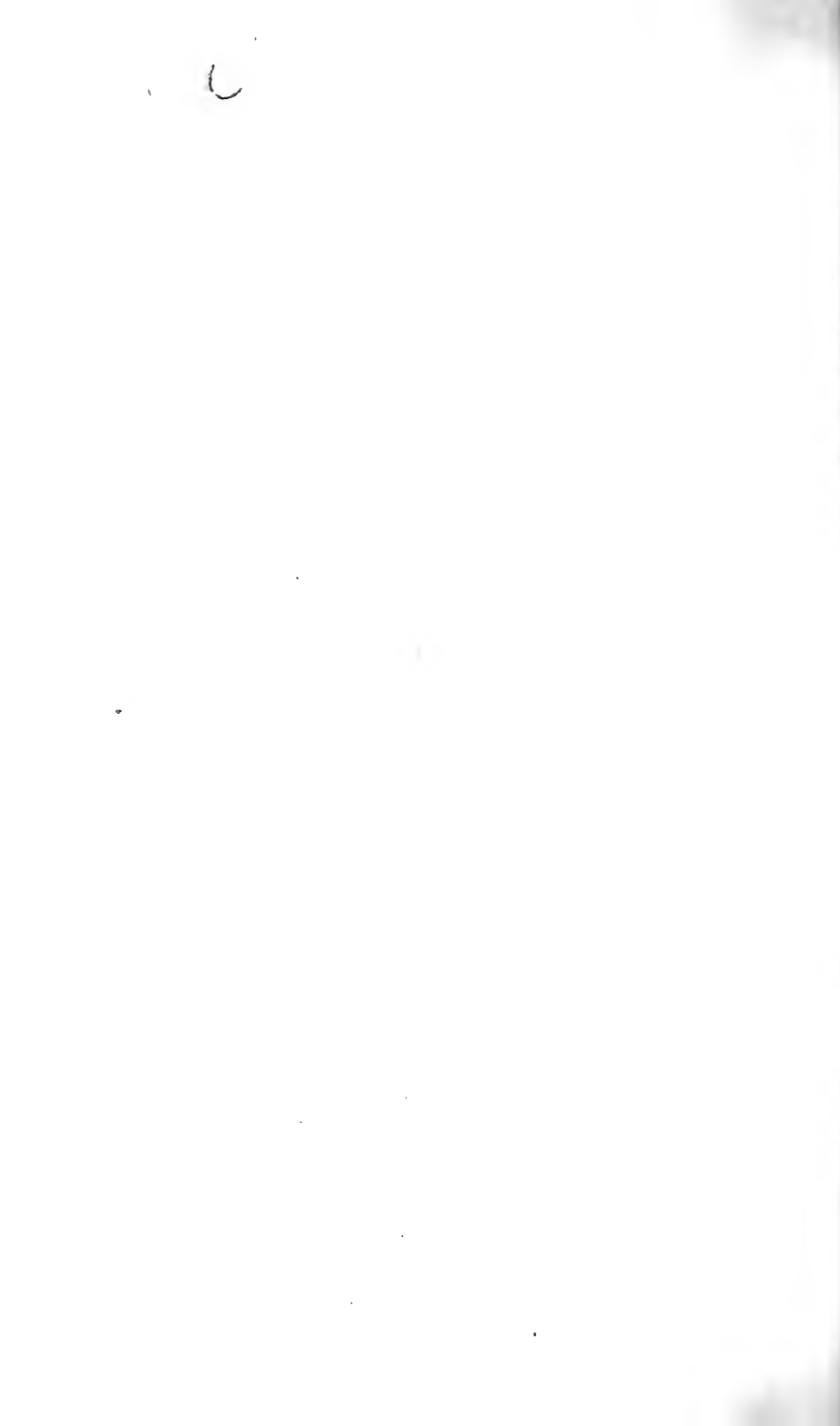
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